JUNE 3, 1939

THE LANCET

Offices: 7, ADAM STREET, ADELPHI, W.C.2.

Telegrams: LANCET, RAND, LONDON. Telephone: TEMPLE BAR 7228 and 7229.

No. XXII., OF VOL. I., 1939. LONDON, SATURDAY, JUNE 3, 1939. Pp. 120—Price 1s.
No. 6040. VOL. CCXXXVI. Founded 1823. PUBLISHED WEEKLY. Registered as a Newspaper. Annual Subscription: Inland £2 2s. Abroad £2 10s.

9 Plates and 135 Text Illustrations. 15s. net; postage 6d.

DISEASES OF THE
EAR, THROAT AND NOSE.
By J. DOUGLAS McLAGGAN, F.R.C.S. Eng. and Edin.
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C.1.

PHYSIOLOGY AND PATHOLOGY OF THE
HEART AND BLOOD-VESSELS.
By J. PLESCH, M.D.
Emeritus Professor of Internal Medicine in the University of Berlin.

"A well of information and provocative reading is manifest in this book . . . ought to be studied by everyone interested in the circulation and its disorders."—THE LANCET.
15s. net.
Oxford University Press.

2nd Edn. 490 pp. 14 Plates. 297 Illus. 30s. net; post. 7d.
CYSTOSCOPY AND UROGRAPHY.
By JAS. B. MACALPINE, F.R.C.S.
"A credit to British surgery."—BRIT. JNL. OF SURGERY.
Bristol: John Wright & Sons Ltd. London: Simpkin Marshall Ltd.

Second Revised Edition. 82 Illustrations. 30s. net.
CANCER OF THE BREAST
AND ITS TREATMENT.
By W. SAMPSON HANDLEY, M.S., F.R.C.S.
John Murray, Albemarle-street, W.

SECOND EDITION.
UROLOGY IN WOMEN.
A HANDBOOK OF URINARY DISEASES IN THE FEMALE SEX.
By E. CATHERINE LEWIS, M.S. (Lond.), F.R.C.S. (Eng.), Surgeon to the Royal Free Hospital; Surgeon and Urologist to the South London Hospital for Women.
¶ "*This book should certainly make and keep for itself a place in urological literature.*"—LANCET.
Pp. viii + 100. With 4 Coloured Plates and 27 other Illustrations. Price 6s.; postage 5d.; abroad 9d.
Baillière, Tindall & Cox, 7 & 8, Henrietta-street, London, W.C.2.

Second Edition. Pp. 190 + viii. 6s. net. Just Published.
PRINCIPLES OF MEDICAL STATISTICS
By A. BRADFORD HILL, D.Sc., Ph.D.
The Lancet Limited, 7, Adam-street, Adelphi, London, W.C.2.

DISEASES OF THE THYROID GLAND.
WITH SPECIAL REFERENCE TO THYROTOXICOSIS.
By CECIL A. JOLL, M.S., B.Sc., F.R.C.S.(Eng.).
Crown 4to. Fully Illustrated. £3 3s. net.
"Mr. Joll has presented his fellow practitioners and students with a monumental volume. They need not trouble to search the literature published up to the time this volume went to press, for they will find everything relevant within its covers."
—BRITISH JOURNAL OF SURGERY.
William Heinemann (Medical Books) Ltd., 99, Great Russell-street, London, W.C.1.

MAJOR ENDOCRINE DISORDERS.
By S. LEVY SIMPSON, M.A., M.D. (Cantab.), M.R.C.P.
Price 11s. post free.
John Bale Medical Publications Ltd., 87, Great Titchfield-st., W.1.

PSYCHOLOGICAL METHODS OF HEALING.
By WILLIAM BROWN, D.M. (Oxon.) D.Sc. (Lond.), F.R.C.P.
"As an introduction to the study and practice of psychotherapy, 'Psychological Methods of Healing' is by far the best book we have as yet come across . . . . It is one which we have great pleasure in recommending to practitioners as the best introduction to the subject of modern psychotherapy obtainable."
—MEDICAL TIMES.
7s. 6d. net. Prospectus obtainable post free.
University of London Press, Ltd., 10–11, Warwick Lane, E.C.4.

3rd Ed., fully revised, 852 pp., 816 Illustrations.
EMERGENCY SURGERY. 50s. net; postage 8d.
By HAMILTON BAILEY, F.R.C.S.
Bristol: John Wright & Sons Ltd. London: Simpkin Marshall Ltd.

Free to the Medical Profession on request. Cloth bound Ed. 5s.
ARTIFICIAL LIMBS.
"SOLVITUR AMBULANDO."
A Symposium on Prosthetic Achievement.
Pp. 72. 37 Coloured Plates.
"I congratulate you on this interesting, instructive, and artistic production. I consider it to be a very great addition to my library."—M.B., Ch.B., F.R.C.S.
J. E. Hanger & Co. Ltd., 7, Roehampton House, Roehampton, S.W.15.

Pp. 328 + xii 12s. 6d. net.
INTRODUCTION TO
DISEASES OF THE CHEST.
By JAMES MAXWELL, M.D. (Lond.), F.R.C.P. (Lond.).
Hodder & Stoughton Ltd., 20, Warwick-square, E.C.4.

By H. CRICHTON-MILLER, M.A., F.R.C.P., Hon. Senior Physician, Tavistock Clinic.
INSOMNIA. An Outline for the Practitioner.
Price 10s. 6d.
Edward Arnold & Co., 41–43, Maddox-street, W.1.

BOOKS by
WILFRED HARRIS, M.D., F.R.C.P.

THE FACIAL NEURALGIAS ..	7s. 6d. net.
NEURITIS AND NEURALGIA ..	12s. 6d. net.
MORPHOLOGY OF THE BRACHIAL PLEXUS	25s. net.

Oxford University Press.

129 Illustrations (10 coloured). 12s. 6d. net; postage 6d.
DISEASES OF THE TESTICLE.
By HAMILTON BAILEY, F.R.C.S.
". . . one of the best monographs we have read."—*British Journal of Surgery.*
London: H. K. Lewis & Co., Ltd., 136, Gower-street, W.C.1.

THREE ★ NEW ★ BOOKS

EVANS' RECENT ADVANCES IN PHYSIOLOGY
Revised by W. H. NEWTON, M.D., M.Sc.
Reader in Physiology, University of London, University College.
NEW (SIXTH) EDITION.
109 Illustrations. 15s.
Thoroughly revised and brought up to date. Several new Chapters have been included.

A SHORT TEXTBOOK OF SURGERY
By C. F. W. ILLINGWORTH, M.D., F.R.C.S.(Ed.).
Lecturer in Clinical Surgery, University of Edinburgh.
NEW (SECOND) EDITION.
12 Plates and 189 Text-Figures. 21s.
New matter introduced includes references to the use of sulphanilamide compounds, to recent work on hæmorrhage in jaundice, and to the value of sympathectomy in essential hypertension. Many new illustrations have been added.

RECENT ADVANCES IN HÆMATOLOGY
By A. PINEY, M.D., M.R.C.P.
Assistant Physician, St. Mary's Hospital for Women and Children, London.
NEW (FOURTH) EDITION.
8 Col. Plates and 34 Text-Figures. 15s.
This fourth edition is, in fact, a new book. Only a few pages of the older edition have been incorporated, all the rest having been rewritten. New coloured plates and half-tone illustrations have been added.

J. & A. CHURCHILL Ltd., 104 Gloucester Place, LONDON W.1

For the treatment of conjunctivitis, painful and tired eyes and pink eye, also for the relief of hay fever

PHENOLAINE EYE DROPS

Phenolaine is antiseptic and anæsthetic, so that the conjunctiva is not only rendered insensitive, but the infecting organism is also destroyed.

Samples obtainable from—

THE PHENOLAINE COMPANY
59, BREWER STREET, PICCADILLY, W.1 Gerrard 4741

For the relief of **ASTHMA**

BRONCHOSPASM must be abolished

Morphia and other narcotics are definitely contra-indicated in all chronic disease . . .

Felsol . . .

relieves bronchospasm immediately yet FELSOL POWDERS contain *no* morphia or other narcotic

For full particulars of the FELSOL TREATMENT of ASTHMA *without narcotics* and a supply of powders for clinical trial write :—

BRITISH FELSOL COMPANY LTD.
Telephone : Clerkenwell 5862
Wigton House, 206/212, St. John Street, Clerkenwell - - - - - London, E.C.1
Telegrams : Felsol, Smith, London

DESITIN The external Cod-liver Oil Therapy

DESITIN Ointment

Rapid healing of wounds. Painless change of dressings. Immediate alleviation of pain and itching.
DESITIN OINTMENT in varicose ulcers, wounds, burns and eczema.
Samples on request.
DESITIN PRODUCTS Ltd., Manufacturing Chemists, Gt. Western Trading Estate, Park Royal Rd., London, N.W.10

DESITIN The external Cod-liver Oil Therapy

JUNE 3, 1939

THE LANCET

A JOURNAL OF BRITISH AND FOREIGN MEDICINE, SURGERY, OBSTETRICS, PHYSIOLOGY, CHEMISTRY, PHARMACOLOGY, PUBLIC HEALTH, AND NEWS

No. 6040 LONDON: SATURDAY, JUNE 3, 1939 CCXXXVI

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

Diagnosis and Treatment of Acute Appendicitis in Children. By G. GORDON BRUCE, F.R.C.S. (*with diagrams*) 1247
The "Appendix Mass." By R. J. MCNEILL LOVE, F.R.C.S. 1252
Testosterone Propionate: Its Effect on the Histology of Prostatic Enlargement in Man. By E. P. SHARPEY-SCHAFER, M.R.C.P., and R. SHACKMAN, F.R.C.S. (*illus.*) 1254
Prognosis in Acute Nephritis in Childhood. By K. H. TALLERMAN, F.R.C.P., and J. H. BURKINSHAW, M.R.C.S. 1255
The Rôle of Obstruction in Fatal Pulmonary Embolism. By Prof. ROBIN PILCHER, F.R.C.S. 1257
Autopsy Incidence of Pulmonary Embolism. By T. H. BELT, M.B. 1259
Nicotinic Acid in Endemic Glossitis. By I. KATZENELLENBOGEN, M.D. 1260
Long-latent Infection with *Plasmodium ovale* becoming Manifest after Yellow-fever Vaccination. By F. MURGATROYD, M.R.C.P., G. M. FINDLAY, M.D., and F. O. MACCALLUM, M.D. 1262

CLINICAL AND LABORATORY NOTES

Large Calculi in the Posterior Urethra. By A. MILLER, F.R.C.S. (*illus.*) 1263
Bilateral Dislocation of the Hip with Fracture of the Pelvis. By R. H. GARDINER, F.R.C.S.E.. 1265

MEDICAL SOCIETIES

Royal Society of Medicine: Section of Urology: Radiotherapy in Urology 1265
Royal Medico-Psychological Association: Recreational Therapy.. 1267
British Orthopædic Association 1268

REVIEWS AND NOTICES OF BOOKS

Carbon Monoxide Asphyxia. By Prof. C. K. Drinker 1269
A Textbook of Histology. By Prof. E. V. Cowdry 1269
Handbook of Ophthalmology. By Humphrey Neame, F.R.C.S., and F. A. Williamson-Noble, F.R.C.S. 1269
Internal Medicine. Edited by Prof. J. H. Musser, M.D. 1270
Handbuch der Virusforschung. Edited by Prof. R. Doerr, Prof. C. Hallauer and others 1270
Surgery of the Ear. Edited by Prof. S. J. Kopetzky, M.D..... 1270

LEADING ARTICLES

THE PULMONARY EMBOLUS 1271
PLACENTAL INFARCTS AND TOXÆMIA 1272
THE VOICE OF NATURE.. 1273

ANNOTATIONS

Orange Juice for Breast-fed Babies 1274
Treatment of Agranulocytosis 1274
Welfare of the Blind..... 1274
Angina Pectoris and Xanthomatosis 1275
The Insanity Defence ... 1275
Tuberculin Tests in Cattle 1275
Marvels at the Royal Society 1276
Wood and Bones 1276
The American Submarine Disaster 1277
Technical Requirements of Pasteurisation 1277
Aspirin as a Poison 1278
Anæsthetics in War-time. 1278
Students and Military Service 1278

SPECIAL ARTICLES

The Birth-rate and Present-day Difficulties. By Viscount DAWSON OF PENN, F.R.C.P. (*with charts*) 1279
General Medical Council: Penal Cases reported by the Dental Board—Charges against Medical Practitioners (*concluded*) 1281
The Hastings Congress: Nursing Services—Otorrhœa in Children.. 1282
Ireland: The Irish Medical Union 1284
United States of America: Appendicitis—Motile Spermatozoa Proved Sterile 1285
Barbiturates by Post 1280
Infectious Disease in England and Wales.... 1287
THE LANCET 100 Years Ago 1299

GRAINS AND SCRUPLES

From Peter Quince—I... 1286

LETTERS TO THE EDITOR

The Psychologist in War-time (Dr. William Brown) 1288
The Present Position of Dentistry (Dr. Martin Rushton, L.D.S.)..... 1288
First-aid Posts (Lieut.-Col. J. B. Scott, M.B.). 1288
Air-raid Casualties in London (Drs. L. Crome, R. E. W. Fisher, and G. B. Shirlaw)..... 1289
Heart-failure (Dr. W. N. Leak)..... 1290
Progress against Pneumonia (Dr. Paul Gibson) 1290
A National Language for India (Captain E. S. Gopalan, I.M.S.)..... 1290

PARLIAMENT

On the Floor of the House 1291
From the Press Gallery: Hospital Accommodation for Air-raid Casualties—Evacuation and Public Health—The Medicine Stamp Duties—Medical Students and Military Training 1292
Question Time: Finances of Voluntary Hospitals—Evacuation and Epidemics—Panel Doctors' Surgeries 1293

OBITUARY

Prof. Charles H. Mayo, F.R.C.S. (*with portrait*). 1294
Charles Ralph Cooke-Taylor, M.R.C.S. 1295
Donald Rose Paterson, F.R.C.P. 1296
Joseph Thompson, M.R.C.S. 1296

MEDICAL NEWS

University of Oxford 1296
University of Cambridge . 1296
University of London.... 1296
University of Leeds 1296
Harveian Society 1296
Society of Apothecaries.. 1296
Royal College of Surgeons 1296
Medicine Stamp Act 1296
King's College Hospital.. 1297
London Hospital 1297
Faculty of Radiologists.. 1297
Indian Medical Service.. 1297
Science and Society 1297
Association of Industrial Medical Officers 1297
National Baby Week 1297
Service Appointment 1297
British Red Cross Society 1297
Streptococcal Sore-throat in New York State.... 1297
Spanish Emigrants..... 1297
Transfusion of Stored Blood 1280
London and Counties Medical Protection Society 1287

NOTES, COMMENTS, AND ABSTRACTS

Growth of Children in Day-schools. By JOHN ALLAN (*with charts*) 1300
Time-budgets 1301
Oral Therapy in Diabetes 1302
An Osteo-arthritic Triad. 1302
M.D. Lausanne 1302
William Turned Guglielmo 1302

Appointments 1298
Vacancies 1298
Medical Diary 1299
Births, Marriages, Deaths 1299

LEWIS'S PUBLICATIONS

JUST PUBLISHED. THIRD EDITION (ENGLISH REPRINT)

With Portrait of Author. Pp. xiv + 454. Demy 8vo. **7s. 6d.** net; postage 6d.

OSLER'S AEQUANIMITAS

and other Addresses to Medical Students, Nurses and Practitioners of Medicine.

By **Sir WILLIAM OSLER**, Bt., M.D., F.R.S., Late Regius Professor of Medicine, Oxford; Honorary Professor of Medicine, Johns Hopkins University. With a Biographical Note by SIR WALTER LANGDON-BROWN, M.D. (Cantab.), F.R.C.P.

DIATHERMY—SHORT WAVE THERAPY—INDUCTOTHERMY—EPITHERMY

By **WILLIAM BEAUMONT**, M.R.C.S. (Eng.), L.R.C.P. (Lond.). With 106 Illustrations. Crown 8vo. **10s. 6d.** net; postage 6d. *Just Published.*

ARTHRITIS, FIBROSITIS AND GOUT

By **C. W. BUCKLEY**, M.D., F.R.C.P.

With 14 Plates containing 24 Figures. Demy 8vo. **7s. 6d.** net; postage 6d.

LONDON: H. K. LEWIS & Co. Ltd., 136 GOWER ST., W.C.1.

THAT CALM JUDGMENT..
which governs his business life is applied with equal effect to his smoking habits. He likes a cork-tipped cigarette but for dependability and coolness
IT MUST BE A
Player's
PLAYER'S NAVY CUT
CORK-TIPPED SMOKERS SAY 'Player's Please' · MEDIUM OR MILD · 10-6½D · 20-10½D
N.C.C. 484B.

ADDRESSES AND ORIGINAL ARTICLES

DIAGNOSIS AND TREATMENT OF ACUTE APPENDICITIS IN CHILDREN

A REVIEW OF 467 CONSECUTIVE CASES

BY G. GORDON BRUCE, F.R.C.S.

SURGEON TO ROYAL ABERDEEN HOSPITAL FOR SICK CHILDREN AND ASSISTANT SURGEON TO ABERDEEN ROYAL INFIRMARY

DURING the period 1925–39 I operated on 467 children under twelve years of age suffering from acute appendicitis, the majority in the Royal Aberdeen Hospital for Sick Children. Immediate operation was the rule and expectant treatment was carried out in 3 cases only. No case was refused operation. The results are recorded in tables I and II.

TABLE I—RESULTS OF OPERATION ON 467 CONSECUTIVE CASES OF ACUTE APPENDICITIS

Group	—	Cases	Deaths
1	Acute appendicitis without gangrene	206	0
2	Ditto with gangrene	114	0
3	Ditto perforated with local peritonitis* or commencing abscess ..	76	1
4	Ditto perforated with general peritonitis	47	8
5	Established appendicular abscess ..	24	0
	Total ..	467	9 (1·9%)

* The term "peritonitis" denotes suppurative peritonitis secondary to the rupture of a gangrenous appendix.

TABLE II—CAUSES OF DEATH

	Cases
General peritonitis	5
Pylephlebitis	2
Secondary abdominal abscess	1
Unknown	1

It will be seen that, when the disease was limited to the appendix, recovery always took place; but in 147 the appendix had already perforated and peritonitis or abscess had supervened before admission to hospital. How can we explain this tragic delay in 31 per cent. of cases? Murphy's (1909) original description of acute appendicitis has long been regarded as a classic and has been quoted verbatim on countless occasions throughout the surgical world, "First pain in the abdomen sudden and severe, primarily referred to the epigastrium, followed by (second) nausea and vomiting, most commonly between three and four hours after the onset of pain. Third, general abdominal sensitiveness most marked on the right side and more particularly over the appendix. Fourth, elevation of temperature from two to twenty-four hours after the onset of pain." Again Murphy states "Temperature is not absent in a single infective case in its early stages." Although such dogmatic statements are doubtless admirable in general and true in typical cases, they constitute a danger in the atypical forms of the disease and have led to many errors in diagnosis. How often has a surgeon heard a doctor sadly remark, "I did not think appendicitis possible because the vomiting came before the pain," or "I thought I could exclude appendicitis because the child's temperature was normal"? Thus pain is not always the first symptom and an unusual onset may be expected in at least 12 per cent. of cases (table III).

TABLE III—MODE OF ONSET IN PRESENT SERIES

Earliest complaint	*Cases*	
Abdominal pain—		
Epigastric or umbilical ..	238	407
In right iliac fossa	114	
Hypogastric	55	
Vomiting		34
Diarrhœa		12
Headache		6
Shivering		5
Drowsiness and listlessness		3

In 1914 Wilkie did much to elucidate the pathology and symptoms of acute appendicitis by recognising two primary acute diseases of the appendix: (1) acute inflammation of its wall, and (2) acute obstruction of its lumen (Wilkie 1931). The former is mild and seldom fatal, the latter is always dangerous with tension-gangrene and perforation liable to occur in six to twenty-four hours. In acute appendicular obstruction the appendix may be gangrenous and on the point of rupture and yet the temperature and the pulse-rate may be normal. Wilkie's description is very different from Murphy's and is not sufficiently known throughout the medical profession. The abrupt onset of severe pain is always ominous and the history of general abdominal pain ultimately settling in the right iliac fossa is almost diagnostic. The absence of other symptoms never excludes appendicitis. The acuteness of both symptoms and signs varies from hour to hour and there may be a brief symptom-free period immediately preceding perforation, but it is only in exceptional cases that pain and tenderness entirely disappear. Very rarely a child may complain of pain only in the left side. This is suggestive of pelvic peritonitis complicating an attack of appendicitis and of an infection spreading upwards from the pelvis to the left of the meso-sigmoid. Although trauma and exposure to cold may cause abdominal pain and gastro-intestinal symptoms, both may predispose to an attack of appendicitis. Repeated vomiting is an ominous symptom and often heralds impending gangrene and rupture of an obstructed appendix.

PHYSICAL SIGNS IN ACUTE APPENDICITIS

Although most children look flushed and anxious during an acute attack, many appear in perfect health and a normal temperature is of no diagnostic significance. In doubtful cases the advice to count the pulse-rate and to wait to see whether it rises or not is occasionally useful, but I have always thought that in the diagnosis of appendicitis too much stress is laid on the temperature and pulse-rate and too little on the state of the abdomen. If the appendix is gangrenous or distended with pus, a child's breath may smell of *Bacillus coli* pus.

The abdomen must be examined with the greatest care and most delicately in order that the slightest degree of rigidity and tenderness may be appreciated. This will be impossible unless a child be comfortably reclining with at least two pillows beneath the head and shoulders to relax the abdominal muscles. It is essential not to hurry. The examining hand must be warm and should be passed gently and lightly over the whole abdomen and over both loins, estimating the resistance of the muscles, group by group and side by side. No attempt should be made to press or to elicit tenderness at this stage. After

deciding on the state of the muscles, tenderness may be gently sought for, and if at this moment a child slowly flexes the right thigh the case is almost certainly one of acute appendicitis. Tenderness found on deep and rough palpation may be very misleading. Most commonly both rigidity and tenderness are present but they may not be equal in degree, or one may find a complete absence of physical signs. On several occasions I have examined children during the first hour of the attack without finding signs suggestive of acute appendicitis. This fleeting stage, which seldom lasts for more than a few hours, may mimic colic very closely. In fact the earliest pain in appendicitis is probably due to irregular peristalsis in the appendix and terminal ileum, and is entirely splanchnic or visceral in nature. The peritoneum reacts later with the typical tender resistant abdominal wall. If a doctor is in doubt in an early case, as he well may be, he should re-examine the child after an interval of two or three hours. Morphia should not be given and on no account should castor oil be prescribed ; for there is no more certain method of hastening the rupture of a gangrenous appendix. Even an enema is not free from risk.

CLINICAL PICTURES

It is a mistake to think of a single clinical picture in acute appendicitis ; there are several, each with its distinctive physical signs.

TYPE 1.—With rigidity and tenderness over McBurney's point in the right iliac fossa, we have the typical book-picture of acute appendicitis. If the appendix lies immediately beneath the abdominal wall, uncovered by bowel or omentum, the physical signs may be limited to an acutely tender rigid area not much larger than a florin (fig. 1). Naturally the size of this area will depend on the extent of the peritoneal reaction, and although the appendix be only moderately inflamed, rigidity and tenderness may be elicited far beyond the middle line. On the other hand, an obstructed gangrenous appendix may excite only a slight peritoneal reaction until rupture has taken place.

TYPE 2.—If the appendix lies along the lateral wall of the right iliac fossa, the physical signs may be limited to a zone about two fingers-breadth or less parallel to Poupart's ligament (fig. 2). This is a common site of appendicular abscess in cases neglected for three or four days when a mass will be palpable. If a tumour mass be present earlier in the attack, the appendix is probably wrapped up in omentum and may not have perforated.

TYPE 3.—Pelvic appendicitis has been said to be the most difficult type to diagnose and thus the most liable to cause acute general peritonitis. A child complains of pain low down in the abdomen and may have discomfort in passing urine. The latter complaint is seldom made within the first few hours of an attack of appendicitis, in contradistinction to the urinary symptoms of renal and ureteral conditions which are present usually from the first. In pelvic appendicitis the appendix lies so far distant from the anterior abdominal wall that the intensity of all physical signs is diminished and the right iliac fossa is often clear ; but in every case without exception there may be found over the lower right rectus muscle a small triangular rigid area which tapers gradually outwards towards the iliac fossa and to a lesser extent across the middle line (fig. 3). If this distinctive feature is missed, there are infinite possibilities of a mistake in diagnosis. A rectal examination may confirm the diagnosis of pelvic appendicitis and in late cases may be the only means of detecting a small appendicular abscess.

With the onset of pelvic peritonitis following the rupture of a gangrenous appendix, tenderness and rigidity, although most acute on the right side, will be found to have spread over the whole hypogastrium. For the first time, distension will be seen in the lower abdomen and a vague mass may be palpable above the brim of the pelvis caused by omentum and distended loops of small intestine which form a canopy shutting off the general peritoneal cavity from the infection in the pelvis. Occasionally a pelvic abscess, complicated by a secondary collection of pus spreading up beneath the ileum under both recti muscles, may give a peculiar "midline" picture of rigidity and tenderness. If the infection passes beyond the pelvis, signs of general peritonitis appear. Now there is no mistaking the acute distress, the bright restless eyes, the signs of overwhelming toxæmia and increasing dehydration, the coffee-ground vomit and the small thready pulse. Tenderness spreads up beyond the umbilicus and the whole abdomen becomes tense and distended. Even in advanced cases the physical signs are sufficiently acute in the right side to differentiate peritonitis following the rupture of a gangrenous appendix from the rarer forms of pneumococcal and streptococcal peritonitis. If the appendix perforates along the right lateral wall of the pelvis, the inflammatory focus is frequently covered in by the terminal ileum which readily becomes adherent in the pelvis and may be so œdematous and distended that a picture suggestive of intestinal obstruction may be superadded on that of appendicitis.

TYPE 4. *Retrocæcal appendicitis.*—All appendices found behind the cæcum may be called "retrocæcal" but the term is generally applied to a sessile appendix closely adherent to the posterolateral wall of the cæcum or ascending colon. The right iliac fossa is comparatively superficial but it shelves very steeply into the deep loin recess towards Morrison's kidney pouch. Here a retrocæcal appendix lying high in the loin is far nearer the muscles of the back than the anterior abdominal wall, from which it is always separated by the cæcum or ascending colon and often by coils of small intestine. Thus pain in the back is common and the usual physical signs in front are often dull and ill-defined. Frequently the acute symptoms tend to subside and are replaced by a lethargic septic state. Very little tenderness may be elicited but on bimanual palpation an appreciable fullness may be found in the loin compared with the contralateral side (fig. 4). This increases when an abscess is present.

TYPE 5. *High appendicitis.*—The relations of a high appendix are governed by embryonic conditions. There are two varieties : (1) an appendix, sessile and fixed like the retrocæcal type, lying with the cæcum far up beneath the liver often with the terminal ileum adherent in the loin ; (2) a mobile appendix and cæcum hanging free in the upper abdomen with the ascending colon unattached in the right flank. Early in an attack, it may be difficult to differentiate high appendicitis from pneumonia, but in the latter disease there is more respiratory distress and the general picture is out of proportion and not in keeping with the signs of commencing appendicitis. Jaundice is not uncommon if the attack has lasted a few days. The physical signs of high appendicitis resemble those present in adults suffering from acute chole-

cystitis or subacute perforation of a duodenal ulcer (fig. 5).

Occasionally the appendix has been found in the left iliac fossa, and the possibility of acute appendicitis in a hernial sac must not be forgotten.

Various tests have been described—Zachary Cope's, Bastedo's, the rebound-tenderness test, zones of hyperæsthesia. Doubtless they are often positive; but I mistrust tests. On several occasions a positive rebound-tenderness test has proved totally misleading; moreover, is it not a crude way of examining an apprehensive child? The diagnosis of acute appendicitis appears to be particularly difficult in very young children and this doubtless accounts for the greater incidence of peritonitis and the very high mortality as table IV will show.

In reading over the case-histories it is painfully evident how often castor oil had been prescribed in the peritonitis group and how frequently a child's parents were responsible for the delay in sending for medical advice. Nothing but the education of the public in the symptoms and danger of acute appendicitis will help to avert such mistakes in the future. Physicians expect too clear a picture! Let me emphasise the importance of the slightest degree of local rigidity and tenderness following the onset of abdominal pain; and the extreme danger of diagnosing intestinal colic, enteritis and abdominal influenza, or of considering an attack of appendicitis so mild that immediate operation is unnecessary.

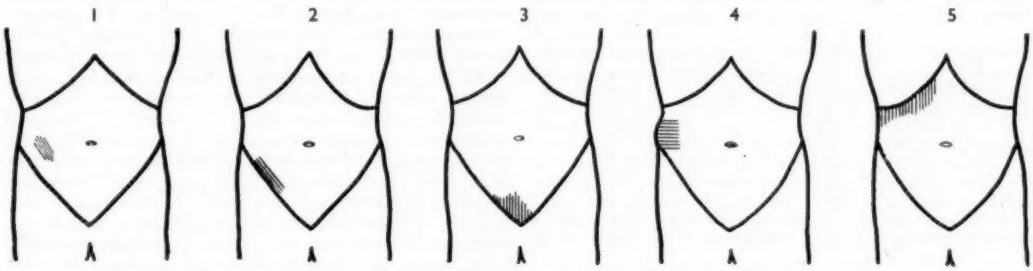


FIG. 1—Acute appendicitis. Appendix lying in right iliac fossa. (Type I.)
FIG. 2—Acute appendicitis. Appendix lying lateral parallel to Poupart's ligament. (Type II.)
FIG. 3—Pelvic appendicitis. (Type III.) FIG. 4—Retrocæcal appendicitis. (Type IV.)
FIG. 5—High appendicitis. (Type V.)

TABLE IV—AGE IN RELATION TO DURATION OF ILLNESS BEFORE OPERATION, COMPLICATIONS AND MORTALITY

Age in years	Cases	Ill two days or longer	Complicated by peritonitis or abscess	Deaths
1– 4	20	15 (75%)	15 (75%)	3 (15%)
4– 8	157	65 (41%)	54 (34%)	2 (1%)
8–12	290	108 (37%)	79 (27%)	4 (1%)

A full differential diagnosis is beyond the scope of this paper. Many diseases mimic acute appendicitis but few have the distinctive little physical signs of appendicitis which I have attempted to describe.

SURGICAL TREATMENT

Experience should enable a surgeon to foretell before operation the position and the pathological changes in the appendix and its surroundings. An accurate diagnosis is the first step in surgical treatment. Then a surgeon can decide if operation should be performed at once or delayed for a few days, which incision should be made whether the appendix should be removed or whether simple drainage is to be preferred. Most children with acute appendicitis should be operated on without delay; the exceptions are those who come after an illness of two or three days with unequivocal evidence of localisation—i.e., when a mass is palpable along the parietal abdominal wall or in Douglas's pouch and when (and this is most important) the rest of the abdomen is soft and lax and free from any sign of peritoneal reaction. In these the Oschner-Sherren treatment is indicated. I do not agree with Coller and Potter (1934) who maintain that cases showing evidence of a generalised peritoneal reaction should be treated conservatively until recovery or abscess occurs; but it is possible that a profoundly ill and seemingly moribund child suffering from general peritonitis, acidosis and extreme dehydration, might be benefited by intravenous saline, rest and warmth and by postponing operation for a few hours.

Nitrous oxide and oxygen supplemented by Novocain infiltration is the ideal anæsthetic. When a child is fully anæsthetised, it is advisable again to palpate the abdomen because the presence of a mass, previously undiscovered, may show that the original focus is already walled off from the general peritoneal cavity. Two assistants are always better than one, and the easier an operation is, the more gently and speedily will it be performed. Although speed is doubtless of less importance than gentleness and accuracy, quickness in operating is essential in a dangerously ill child.

I have never pinned my faith to any one incision and would be loth to follow the recommendation from certain clinics in America that the McBurney incision should be made in every case. Like all the best things in life, the operation of appendicectomy needs a little planning! The McBurney incision is ideal if the diagnosis is certain, if the appendix lies immediately beneath the abdominal wall in the right iliac fossa, and if the operation is likely to be a simple one. It is so easy to withdraw a mobile cæcum and appendix through a small muscle-splitting incision; but I cannot imagine anything more dangerous than blunt dissection with the finger in attempting to elevate a fixed, gangrenous appendix through such a limited space. This happens too frequently in indifferent surgical clinics. Too often the appendix is ruptured, the retroperitoneal tissues torn and suffused with blood, hæmostasis is inaccurate, and the stage is set for general peritonitis, abscess, and ileus. In decrying the universal choice of the

McBurney incision because of insufficient exposure, I am fully aware that the incision may be extended downwards through the sheath of the rectus muscle and upwards by cutting across the internal oblique and transversalis muscles. Grey Turner's modification of the McBurney incision, in which all the muscles are divided obliquely, gives excellent access to an appendix lying far out in the loin above the level of the anterior superior iliac spine. But there are risks in operating through small incisions, as the following case will show:—

A boy, aged 10, was admitted to the Royal Aberdeen Hospital for Sick Children in October, 1936. On the evening before admission he was seized with acute abdominal pain and he vomited several times. Rigidity and tenderness were present over the hypogastrium and right iliac fossa. Acute appendicitis was diagnosed and the abdomen was opened through a McBurney incision. The appendix, which looked red and swollen, was removed. When preparations were being made to close the abdomen, a bubble of gas was seen to rise from the pelvis. This aroused my suspicions and on exploring the pelvis I found a large, black gangrenous Meckel's diverticulum on the point of rupture. The inflammatory changes in the appendix had been of a secondary nature.

"We tread on thin and slippery ice."

Suitable exposure is the keynote of successful surgery. If I suspect that the appendix lies high in the abdomen or low in the pelvis, I prefer a paramedian incision, especially if a child has been ill for a few days and I anticipate a gangrenous appendix and technical difficulties.

TABLE V—MCBURNEY *v.* PARAMEDIAN INCISION

—	McBurney or Grey Turner modification		Paramedian incision	
	Cases	Died	Cases	Died
Acute appendicitis without gangrene	134	0	72	0
Ditto with gangrene ..	59	0	55	0
Ditto with local peritonitis or commencing abscess ..	24	1	52	0
Ditto with general peritonitis	11	2	36	6
Established appendicular abscess	15	0	9	0
—	243	3 (1·2 %)	224	6 (2·7 %)

Although table V appears to favour the McBurney incision, it will be seen that the McBurney has been chosen for the more simple cases while the paramedian has been employed in most of the cases of peritonitis. Doubtless a Battle's incision, if used intelligently, would give equally satisfactory results; but I would again emphasise that much depends on choosing the most suitable incision to meet the state of affairs expected in each case.

After the abdomen has been opened, the surrounding coils of small intestine are carefully walled off with moist gauze strips and the appendix is removed under direct vision. Nothing varies so much in surgical clinics as a surgeon's idea of gentleness, and the advice of Socrates might apply to all of us. Are we as gentle as we think? If the appendix is gangrenous and adherent it should not be touched by the finger, and no attempt should be made to elevate it, until it has been released by dividing with a knife or pair of scissors the various strands of tissue which bind it down to the surrounding structures. If the cæcal wall is healthy, the base of the appendix is ligatured and inverted by means of a purse-string suture followed by a letter N stitch. No trouble has ever arisen from the inverted stump. When the wall of the cæcum is inflamed and friable, ligation of the base without further suturing has proved perfectly safe if the wound is drained. Sometimes the appendix is most easily removed by first severing its attachment to the cæcum. I deliberately raise and inspect the terminal ileal loop when it is adherent in the pelvis. This manœuvre combined with gentle and accurate operating is in my opinion the greatest safeguard against postoperative ileus, a complication noteworthy for its rarity in the present series of cases.

Prophylactic enterostomy is seldom if ever indicated. There is no risk in separating coils of small intestine which lie gummed together in the vicinity of an early perforated appendix and, unless the surrounding area is most carefully inspected, localised collections of pus in the pelvis, in the left iliac fossa, and along the right paracolic gutter are liable to be missed and will be responsible for many abscesses which are supposed to form after operation. Where the appendix is gangrenous or perforated all purulent fluid is removed by suction and two rubber drainage-tubes are inserted down to the infected area from which the appendix has been removed. Drainage is rarely satisfactory through stab wounds.

TREATMENT OF APPENDICULAR ABSCESS

There are two types: (1) the recent abscess 12–24 hours old, a local collection of pus lying round a perforated appendix and walled in by omentum and contiguous loops of bowel which are only loosely gummed together; (2) the established abscess of a few days' duration when the surrounding structures are densely adherent. In the first it is easy to remove the appendix and this is probably the correct treatment; in the second appendicectomy may be very difficult without inflicting a degree of trauma which may precipitate serious trouble in the future.

There are few more dangerous and ill-timed abdominal operations than the rough removal of a gangrenous appendix complicated by abscess. As Wilkie has said, "Honesty in reflection will bring to the mind of most surgeons cases of this order which they would willingly forget." Simple drainage is indicated and the appendix can be removed in two or three months. When the inflammatory reaction has reached the abdominal wall, a muscle-splitting approach should be made down to the abscess, and after a little pus has been aspirated with an exploring syringe, a narrow-bladed scalpel should be passed along the needle into the abscess. It is dangerous to force a blunt Mayo's scissors along the needle track, because of the risk of rupturing the abscess into the peritoneal cavity. If the abscess is gently explored with the finger, a concretion which may have escaped from the appendix can often be found and removed. If the abscess appears to be too deep to be tapped in the usual manner, it may be reached by a retroperitoneal approach such as one makes in exposing the lower end of the right ureter; or an abscess lying deep in Douglas's pouch may be drained through the rectum or vagina.

In the present series there were 24 cases of established appendicular abscesses, 11 of which were treated some time ago, perhaps foolishly, by appendicectomy and drainage, and 13 more sensibly in recent years by drainage only. With the exception of

1 child who was suffering from a concurrent pneumonia, all were operated on as soon as possible. Although it is probably safe to wait two or three days before draining an abscess, the risk of such complications as pylephlebitis and fæcal fistula increases with delay.

POSTOPERATIVE TREATMENT

After operation, recovery! The first can be performed expeditiously, the second takes time. In gangrenous appendicitis with peritonitis, the removal of the appendix with drainage is but the first step in treatment and is of little avail unless a child has sufficient resistance to defeat the virulent infection still active in the peritoneal cavity. During this phase, fluid, warmth, rest and sleep are of vital importance and any meddlesome interference in the way of local or general treatment will diminish the chances of recovery. I know of no contra-indication to heroin in suitable doses. Most children require gr. 1/25–1/12 at least three times in twenty-four hours. The water-balance must be maintained, and if a child can drink without suffering from sickness, pain or abdominal distension, ample fluid should be allowed by the mouth. Rectal saline is given for the first few days. If the abdomen remains distended and if persistent vomiting points to a threatened ileus, nothing whatever should be given by the mouth; the stomach should be kept empty by means of an indwelling duodenal tube, and fluid should be provided by continuous hypodermoclysis. I have no great faith in intravenous saline unless there is an urgent need for fluid. Too often intravenous saline is given for shock, or profound infection, when the indications are far from clear. If a child can drink water freely without abdominal pain or distension, milk can soon be added.

A small soap-and-water enema is given on the second or third day. An aperient is never allowed until complete recovery has taken place, evidenced by the appearance of the patient and a soft, lax abdomen. The bowels will move in their own time when the acute reaction within the abdomen subsides. An attempt to whip up peristalsis is most unwise and is more likely to precipitate ileus than to produce a bowel motion. The Fowler position is used as a routine. Large fomentations over the whole of the abdomen and both loins appear to aid drainage. If one of the two drains is removed on the third day, free drainage is provided for along the side of the remaining tube which is shortened daily after the fifth day. I have had no experience of sulphanilamide in the treatment of acute appendicitis but Graham (1938) claims to have cured 2 cases of appendicular pylephlebitis with this drug.

POSTOPERATIVE COMPLICATIONS

Excluding the fatal cases already noted in table I the postoperative complications were as follows:—

Pneumonia	4	Residual abscess ..	1
Empyema	4	Ileus	1
Subphrenic abscess ..	2	Pulmonary embolus ..	1

A pulmonary embolus is very rare in a young child.

A girl, aged 11, was admitted on July 5, 1934, suffering from gangrenous appendicitis and a small abscess. She was treated by appendicectomy and drainage, and was discharged healed in fourteen days. Six days later she was seized with pain in the right side, gasped for breath, became cyanosed and suffered from acute dyspnœa for several hours. A gradual improvement took place, but in a few days an empyema became manifest, requiring rib-resection and drainage.

The fact that there were only 2 residual abscesses in 467 cases of acute appendicitis (an incidence of 0·4 per cent.) tends to confirm the value of drainage in septic cases. It is interesting to contrast the figures (3·3 per cent. in 2126 adult cases) of Sworn and FitzGibbon (1932), who are somewhat sceptical of drainage. The only patient with ileus recovered with the aid of an indwelling duodenal tube and continuous drip saline after being very seriously ill for five days. Fæcal fistulæ have not appeared in the present series. They should be regarded as relics of the past due to sloughing of the cæcum or ileum secondary to suppuration or to trauma inflicted at operation. Drainage alone does not cause fæcal fistulæ.

In cases of postoperative pyrexia it is advisable to examine the chest, the abdomen in general, and the subphrenic spaces by screening. In very toxic cases a pure growth of *Staphylococcus aureus* may be isolated from the blood. Other diseases unrelated to appendicitis but prevalent in children, such as scarlet fever and otitis media, should not be forgotten. If the abdominal incision refuses to heal, a search should be made for a distant untapped focus of suppuration. This retards healing as Carrel (1924) pointed out many years ago.

CASE-MORTALITY

A death-rate of 1·9 per cent. may be compared with others recently recorded (table VI).

TABLE VI

—	Cases	Percentage mortality
Ladd (1938)	632 (C)	3·5
Maes, Boyce and McFetridge (1934)	250 (C)	7·6
Keyes (1934)	380 (C)	7·8
Aird (1938)	400 (A and C)	1·0
Nuttall (1934)	551 (A and C)	2·5
Raw (1930)	619 (A and C)	2·5
Wevil and Wallace (1934) ..	8000 (A and C)	4·5
Turner (1938)	7329 (A only)	4·0

C = children; A = adults.

CONCLUSIONS

(1) 467 consecutive cases of acute appendicitis in children were operated on with a mortality of 1·9 per cent.

(2) Immediate operation is advisable in children.

(3) It is essential to diagnose the existing state of affairs before opening the abdomen; and to operate quickly, gently and accurately.

It is a pleasure to acknowledge my indebtedness to Drs. Elisabeth M. Williams and Dorothy I. Mortimer for their help in the preparation of this paper, and to Dr. D. Dawson for his excellent diagrams.

REFERENCES

Aird, J. (1938) *Lancet*, **2**, 127.
Carrel, A. (1924) *C.R. Soc. Biol., Paris*, **90**, 333.
Coller, F. A., and Potter, E. B. (1934) *J. Amer. med. Ass.* **23**, 1753.
Graham, E. A. (1938) *Ann. Surg.* **108**, 822.
Keyes, E. L. (1934) *Ibid*, **99**, 47.
Ladd, W. E. (1938) *New Engl. J. med.* **219**, 329.
Maes, Boyce and McFetridge (1934) *Surg. Gynec. Obstet.* **58**, 32.
Murphy, J. B. (1909) in Keen's Surgery, Philadelphia, vol. iv, p. 727.
Nuttall, H. C. W. (1934) *Brit. J. Surg.* **78**, 197.
Raw, S. (1930) *Brit. med. J.* **1**, 723.
Sworn, B. R., and FitzGibbon, G. M. (1932) *Brit. J. Surg.* **19**, 410.
Turner, G. Grey (1938) *Brit. med. J.* **2**, 691.
Wevil, L. B., and Wallace, H. L. (1934) *Edinb. med. J.* **41**, 557.
Wilkie, D. P. D. (1931) *Brit. med. J.* **1**, 253.

THE "APPENDIX MASS"

By R. J. McNeill Love, M.S. Lond., F.R.C.S.
SURGEON TO THE ROYAL NORTHERN HOSPITAL, LONDON

It is a common occurrence for most of us to meet people who express dogmatic opinions about subjects of which they have no first-hand experience. This is to some extent explained by the innate conservatism characteristic of the human mentality. On many occasions I have discussed the treatment of the appendix mass with surgical friends and colleagues. Almost all of them who treat these cases by immediate operation admit that they have never given delayed treatment a trial, yet they stoutly affirm their conviction that an emergency operation holds out the best prospects of safety for the patient. My early training ignored any other procedure than immediate operation. After returning from the late war I was appointed surgical registrar to a large teaching hospital, where, to my surprise, I found that some cases of late appendicitis were not treated by emergency operation. This heresy, as I then thought it, demanded investigation, and my conversion to expectant treatment followed automatically when I compared the progress of cases treated by the two methods in the same hospital.

It may be well to consider briefly the clinical features of the appendix mass. Although pathological changes do not necessarily synchronise with the clock, most cases present themselves 48 hours or more after the onset, and show a variable elevation of temperature and pulse. Three quadrants of the abdomen are relatively normal, but there is tenderness, rigidity or a lump in the right iliac fossa or right loin, or a tender mass is palpable on rectal examination. The appendix mass is due either to local peritonitis or, in the later stages, to abscess formation.

IMMEDIATE OPERATION OR EXPECTANT TREATMENT?

The surgeon has the choice of two lines of treatment in dealing with the appendix mass. If immediate operation is undertaken removal of the appendix is usually unwise and often difficult or impossible. Unless the appendix happily presents itself, searching for the organ is liable to separate protective adhesions and spread infection, which increases toxic absorption. Congestion and friability of tissues add to the difficulties of the operation, and the insertion of a drainage-tube, with its attendant evils, is usually necessary. On analysing combined statistics published for some of the teaching hospitals the mortality of immediate operation in the case of an appendix mass is found to be 6 per cent. I am aware that individual surgeons of great experience have published their personal results which show a much lower mortality (Nuttall 1935). On the other hand, the surgical amenities in small provincial and cottage hospitals are below the standard of those in town or city hospitals, so that the unpublished results from these sources would probably disclose a mortality of over 6 per cent. If it were possible to compile statistics of immediate operation on the appendix mass from all sources, therefore, the total mortality would probably be at least 6 per cent.

The alternative to immediate operation is expectant treatment. The patient is nursed in the Fowler position, fomentations are applied locally to relieve pain, and a constant watch is kept on the pulse, temperature, and changes in the character of the mass. Until recently a small amount of fluid was administered by mouth, a procedure that was physiologically unsound, for the entry of fluid into the stomach causes relaxation of the ileo-cæcal valve and consequent local peristalsis. This danger is now obviated by the continuous intravenous infusion of saline and glucose, which has done much to safeguard the patient during the phase of expectant treatment. Anti-gas-gangrene serum is administered so as to tide the patient over the period when his immunity is low. If the patient is apprehensive or nervous *one* moderate dose of Omnopon may be given at the beginning of expectant treatment. This quietens peristalsis and allays anxiety, especially if intravenous infusion is necessary, and its effect will have subsided by the time the next examination is due.

It is generally agreed that expectant treatment is not suitable for children and the aged. In the case of children an accurate history is difficult to obtain, and the mother has usually administered a purgative, while in the aged, as Hermon Taylor (1935) has emphasised, gangrene develops rapidly and the patient's resistance is low.

If expectant treatment is adopted the case progresses in one of three different ways. (1) The pulse and temperature fall and the localised inflammation resolves. In the combined statistics from various sources 65 per cent. of cases subsided. The appendix is removed three months later, when the patient enjoys the benefit of a clean operation. The freedom from adhesions is remarkable, and the mortality negligible.

(2) An abscess forms; this happens in about 25 per cent. of cases. An abscess is no cause for panic, for it indicates that the resistance of the patient has arrested the spread of infection. As Rayner (1933) states, "if the mass becomes converted into an abscess the patient has gained rather than lost by the delay." Also the majority of statistics show that the most dangerous time for operative interference is from the third to the fifth day, when immunity to infection is low. If the patient can be tided over this dangerous period operative interference, if such is needed, is less likely to cause spreading infection, for not only is the resistance improving but the pus is less virulent. If an abscess is diagnosed expectant treatment is still adopted, and it is useful to outline the margin of the abscess with silver stick on the abdominal wall, so that its progress can be estimated with accuracy. The abscess may require drainage for two reasons: (*a*) Increase in size, owing to the risk of rupture into the peritoneal cavity. Usually an abscess ruptures into the bowel and spontaneous cure results, but it is unwise to await this natural method of relief. (*b*) A slow absorption of the abscess. Visceral degeneration is a possible consequence of prolonged toxæmia, and drainage of the abscess shortens the period of disability.

(3) The third possibility is that operation becomes imperative owing to exacerbation of pain, increasing local rigidity, or elevation of pulse and temperature. Expectant treatment must be abandoned in about 10 per cent. of cases, but this figure will be reduced when intravenous infusion is adopted to the exclusion of any fluids whatever by the mouth. It is the failure of expectant treatment in this small minority that unfortunately causes surgeons to hesitate to adopt it. However, even in these cases in which operation becomes a necessity, the mortality, as based on 77 cases from the London Hospital (Love 1933), was only 6·5 per cent., so that little was lost by the delay. It must be remembered that even if delay has allowed local inflammation to spread, some compensation accrues in that the patient has had the benefit of physical rest and physiological repose to his alimentary canal. As Sir James Berry wrote in

1922, "a few days' delay often puts the patient into a more favourable condition for operation if that should prove necessary."

PROS AND CONS OF POSTPONING OPERATION

A summary of the results of expectant treatment shows an average mortality of under 3 per cent. Some of the criticisms levelled at this procedure are as follows. It is said that public opinion may be influenced, so that medical assistance might not be called in immediately. No exponent of expectant treatment condones delay in summoning surgical advice. Districts in which the virtues of expectant treatment are preached are said to show an unduly high mortality for appendicitis, owing to such delay. This is not a result of the treatment but is due to faulty teaching and neglect in emphasising that expert surgical advice and supervision are necessary at every stage of acute appendicitis. Further, it is said to be impossible to judge the condition of the appendix unless the abdomen is explored. It is equally impossible to estimate the position of the appendix, which may be inaccessible in the presence of acute infection, and it is also impossible to assess the resistance of the patient, which may be quite capable of walling off infection and allowing subsequent resolution. Also it is generally accepted that necrosis of the appendix does not in itself constitute a danger to life, except in so far as it may cause spreading peritonitis.

Delayed treatment imposes a tax on the courage and judgment of the surgeon, and psychologically it is much easier to operate at once than await the result of delayed treatment. However, these considerations are of no moment if delay is repaid by fewer complications and a diminished mortality.

Postoperative complications are said to be more frequent if treatment is delayed, but I can find no justification of this statement in any statistics in which the two methods of treatment are compared. To take a typical example, Sworn and FitzGibbon (1932) analysed the cases with an appendix mass admitted to St. Thomas's Hospital between 1920 and 1929 and found that immediate operation was followed by postoperative complications in 17·1 per cent. of cases, whereas only 6·76 per cent. of those not operated on developed complications.

With regard to the relative mortality of the two lines of treatment, I have assessed the average mortality of immediate operation at 6 per cent., while that of expectant treatment is under 3 per cent. Experienced surgeons have published their personal statistics showing a low mortality with immediate operation. Doubtless their exceptional skill enables them to operate with exceptional delicacy and judgment. They have learned how much pressure should be applied to an adhesion, and the degree of traction which can be applied with safety to the cæcum. As Zachary Cope (1936) writes, "When the operator has great experience and judgment . . . complications are uncommon." However, considering the question from a broader point of view, it is the less experienced surgeon who operates on the majority of cases, a contention which is supported by time periods and figures quoted at the end of this article. If the task of the junior surgeon can be simplified his patients will reap the benefit. It requires little experience to decide whether a pulse is rising, whether a lump is increasing in size, or a zone of tenderness is extending. As three out of four cases treated expectantly completely subside the emergency operations are reduced to a quarter, many of which demand merely the introduction of a drainage-tube.

RESULTS

I have not yet read of any exponent of expectant treatment who has reverted to immediate operation. On the other hand, surgeons often express their satisfaction with the results of changing over to expectant treatment. For example, Patterson (1936) states that "the mortality of operations on appendix abscess was 8·6 per cent., particularly high if operated on between 50 and 72 hours. This led to a change of policy in our treatment of appendiceal abscesses, so that now, if an abscess is diagnosed, operation is delayed until a period when adequate walling-off has occurred." Again, Sherren (1925) wrote after over twenty years' experience at the London Hospital, "The only change I have made has been to greater conservatism and more patience in dealing with cases of appendix abscess." However, generalisations regarding statistics are often misleading, so I quote below my own experience with these two lines of treatment during two periods of my surgical career.

RESULTS OF TREATMENT IN CASES WITH A LOCAL APPENDIX MASS

—	GROUP I June, 1920–June, 1922	GROUP II 1933–38	
	Immediate operation	Immediate operation	Expectant treatment
Total cases ..	124	12	104
Deaths	9	2	3
Mortality (per cent.)	7·3	16·7	2·9

It will be noted that the second group includes 12 cases treated by immediate operation. Of these cases 11 were at one or other extreme of life so that expectant treatment was inadvisable; the other was in a remote country nursing-home where surgical supervision was impossible, and domestic conditions precluded transport to a more accessible centre. My own experience, therefore, is that with the adoption of expectant measures the mortality has fallen from over 7 to under 3 per cent.

SUMMARY

In cases with an appendix mass, due either to local peritonitis or abscess, immediate operation is often difficult and shows an average mortality of 6 per cent. or more.

Expectant treatment requires careful medical and nursing supervision and includes the Fowler position, fomentations, continuous intravenous saline and glucose, and anti-gas-gangrene serum. Of cases so treated two-thirds subside and the appendix can be removed three months later; in a quarter an abscess forms, which must be drained if it enlarges or is slow to be absorbed; and the remainder require surgical intervention because of local or general signs of exacerbation. The average mortality of expectant treatment is under 3 per cent.

Expectant treatment is unsuitable for children and old people, but should be generally adopted in other cases.

REFERENCES

Berry, J. (1922) *Lancet*, **2**, 1015.
Cope, Z. (1936) *Med. Pr.* **98**, 138.
Love, R. J. McN. (1923) *Brit. J. Surg.* **10**, 520.
Nuttall, H. C. W. (1935) *Brit. med. J.* **2**, 1045.
Patterson, A. C. (1936) *Ann. Surg.* **103**, 362.
Rayner, H. H. (1933) *Clin. J.* **62**, 89.
Sherren, J. (1925) *Brit. med. J.* **1**, 727.
Sworn, B. R., and FitzGibbon, G. M. (1932) *Brit. J. Surg.* **19**, 410.
Taylor, H. (1935) *Lancet*, **2**, 937.

TESTOSTERONE PROPIONATE

ITS EFFECT ON THE HISTOLOGY OF PROSTATIC ENLARGEMENT IN MAN

BY E. P. SHARPEY-SCHAFER, M.R.C.P.

FIRST ASSISTANT IN THE DEPARTMENT OF MEDICINE AT THE BRITISH POSTGRADUATE MEDICAL SCHOOL, LONDON; AND

R. SHACKMAN, F.R.C.S.

FIRST ASSISTANT IN THE DEPARTMENT OF SURGERY AT THE SCHOOL

THE belief that senile enlargement of the prostate in man is in some way connected with an endocrine imbalance has been expressed by many writers. Proof of such a belief is lacking, though analogies have been drawn and some suggestive indirect evidence has been put forward. Lacassagne (1933) in mice, de Jongh and Kok (1935) in dogs, and Parkes and Zuckerman (1935) in primates have shown that the administration of œstrogens causes enlargement of the prostate, and that this effect can be prevented by the simultaneous administration of androgens (Zuckerman and Parkes 1936). The histology of the enlarged prostate produced in monkeys by the injection of œstrogens is unlike that usually found in senile enlargement in man. In monkeys, apart from a general increase in size, the most pronounced changes are a fibromuscular growth and stratification of the uterus masculinus, the acini and tubules being but little affected. Very rarely in man a somewhat similar picture is found; more usually the glandular elements are most involved. A full discussion of the experimental evidence and its bearing on the human disease has been published by Zuckerman (1936).

The therapeutics of prostatic enlargement, on an endocrine basis, have gone through several unfortunate phases. Castration, originally advocated by White (1893), has fallen into disrepute, and the Steinach operations lack experimental support. In recent years the administration of androgens has been enthusiastically accepted by many workers as a valuable therapeutic measure. Results have been judged by the symptoms of the patient, by estimation of the residual urine, by the size of the prostate, gauged by rectal palpation, and by cystoscopy. The published reports are favourable in nearly every instance. A control series of cases has been carefully investigated by Clarke (1937), who found that, when there was a minimum of instrumentation and no treatment of any sort was given, there was yet great variability in the course of the disease, and often there was apparently spontaneous cure. It seems probable that many of the reports of favourable results, following the administration of androgens to patients with prostatic enlargement, are open to criticism and may be misleading.

The dosage of androgenic substance commonly given raises another difficulty. Zuckerman and Parkes (1936), using a rhesus monkey weighing 3 kg., reversed the changes produced by 100 μg. of œstrone daily by the simultaneous injection of 5 mg. of androstanediol and 100 μg. of œstrone daily, continued for a further thirty-nine days. To treat prostatic enlargement in man, van Cappellen (1936) used up to 20 capon units (equivalent to 0·66 mg. of androstanediol) daily. Among many others, Cary (1938) advocates 5 mg. of testosterone propionate every fourth day for six injections. Walther and Willoughby (1938) used somewhat similar dosage, though Laroche et al. (1937) gave 20–40 mg. a day in a few cases. It was felt that more objective evidence might be obtained by observing the microscopical appearances of enlarged human prostates before and after the injection of large doses of testosterone propionate. In view of the quantity of this substance used and the difficulty of finding suitable subjects, it is considered justifiable to record observations on a single case.

CASE-RECORD

A labourer, aged 53, complained that for three years he had been getting up at night to micturate. For six months there had been frequency during the day, a small amount of urine being passed every hour. There was sometimes difficulty in starting the act, and the stream was poor. A stinging sensation, referred to the tip of the penis, had been noticed for three weeks. A few days before admission there had been slight hæmaturia, with the passage of several blood-clots. He never had acute retention of urine. He also complained of dyspeptic symptoms.

There were no previous illnesses. No abnormality was found on general examination. Rectal examination revealed moderate enlargement of the prostate, the lateral and median grooves being normal and the surface smooth. The residual urine was 2½ oz.

Cystoscopy showed a bladder with a good capacity and moderate trabeculation of its walls. There was considerable enlargement of the intravesical portion of the prostate, especially on the right side. The urine contained a moderate number of pus cells but was sterile on culture. The blood-urea was 24 mg. per 100 c.cm., and intravenous pyelography showed both kidneys to be excreting normally.

On Oct. 17, 1938, the bladder was opened, and considerable enlargement of the intravesical portion of the prostate was found, the lateral lobes being moderately enlarged. An attempt was made to judge the size of the gland by palpation. From the "middle" lobe a piece of tissue about 1×1×2 cm. was excised with scissors. A de Pezzer's catheter was inserted and the wound closed.

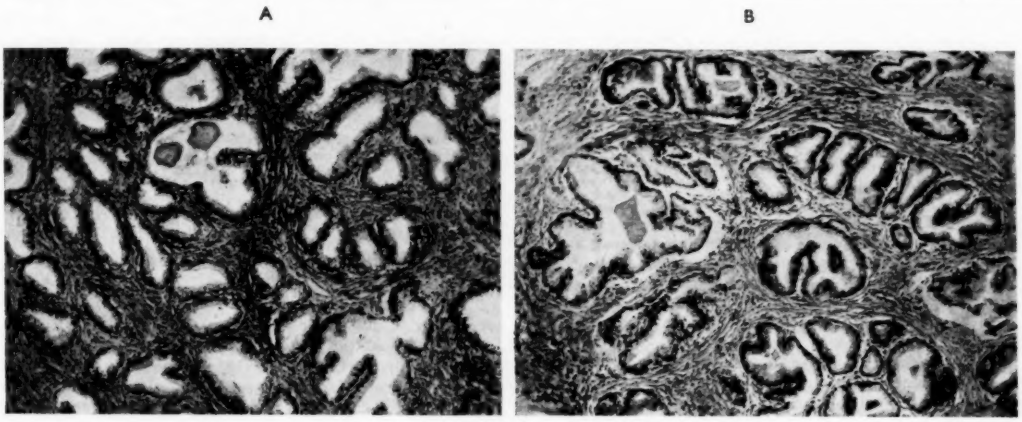
Injection of testosterone.—From Oct. 18 to Nov. 20, 1938, 100 mg. of testosterone propionate in oil was injected daily—a total of 3400 mg. over thirty-four days. The symptoms produced by this heavy dosage were comparatively slight. They will be published in detail elsewhere.

Since a suprapubic drain was left in for this period, the effect on urinary symptoms could not be judged. Recovery from the first operation was uninterrupted. Infection of the bladder was slight.

On Nov. 21 the bladder was again opened, and by palpation it was estimated that the prostate had decreased in size. It was judged that the gland was now only a third of its previous bulk. The prostate was enucleated with considerable difficulty.

Recovery from the second operation was uneventful, and the patient, seen three months later, had no frequency and was free from other urinary symptoms.

Histological report on specimens of prostate before and after testosterone propionate (Prof. J. H. Dible).—The examination of these two specimens of prostate does not reveal any unequivocal difference between them. In the specimen taken before the administration of testosterone propionate there is included only a single adenomatous focus, and in this the glands are rather less plicated and rather more open than they are in most of the comparable foci seen in the specimen which was removed after treatment with hormone. This difference is, however, very slight and may be entirely due to the fact that the single nodule in the smaller specimen was not representative of most of such nodules. Having regard to the great variability of the picture ordinarily seen in the different parts of the senile enlarged prostate, and to the trauma to which the gland is exposed in the operation for its removal, the conclusion is reached that these two specimens show no significant differences in their histological structure.



Photomicrographs of sections of prostate removed by biopsy: A, before and B, after treatment with testosterone (hæmatoxylin and eosin; × 60).

COMMENT

The results of this observation appear to show that no striking change is produced in the histology of an enlarged prostate after the injection of massive doses of testosterone propionate. This is only a single observation, and both the dosage of testosterone and the period of administration may be inadequate. So far as is known, the dosage is greater than has been given by most other workers, and, apart from any possible direct action on the prostate, such a dose (100 mg. a day) has been shown to depress one function of the anterior pituitary, which is probably associated with the gonadotropic hormone, in the case of a young male with acromegaly (Schrire and Sharpey-Schafer 1938). It has been suggested by Champy and Coujard (1937) that the effect of androgens in relieving symptoms of prostatic obstruction may be due to an action on plain muscle. In the case reported here suprapubic drainage precluded any observations on such a possible action The apparent decrease in size of the gland cannot be regarded as necessarily due to the injection of testosterone propionate. It is well known that an enlarged prostate may apparently decrease in size either spontaneously or after suprapubic drainage of the bladder.

Finally, a plea is made for more objective methods of judging the effect of androgens in cases of prostatic enlargement, and for consideration of Clarke's (1937) series of controls, before assessing results by clinical methods alone.

SUMMARY

In a case of prostatic enlargement the histology of the prostate was studied before and after the injection of 100 mg. of testosterone propionate daily for thirty-four days. No significant change was observed.

We thank Prof. J. H. Dible for his opinion on the microscopic sections; the chief medical officer for the county of London for permission to publish the case-record; and Ciba Ltd. for generous supplies of testosterone propionate.

REFERENCES

van Cappellen, D. (1936) *Brit. J. Urol.* **8**, 45.
Cary, F. S. (1938) *Illinois med. J.* **73**, 486.
Champy, C., and Coujard, R. (1937) *C.R. Soc. Biol. Paris*, **125**, 632.
Clarke, R. (1937) *Brit. J. Urol.* **9**, 254.
de Jongh, S. E., and Kok, D. J. (1935) *Acta brev. neerl. Physiol.* **5**, 177.
Lacassagne, A. (1933) *C.R. Soc. Biol. Paris*, **113**, 590.
Laroche, G., Marsan, F., Bompard, E., and Corcos, A. (1937) *Pr. méd.* **45**, 932.
Parkes, A. S., and Zuckerman, S. (1935) *Lancet*, **1**, 925.
Schrire, I., and Sharpey-Schafer, E. P. (1938) *Clin. Sci.* **3**, 413.
Walther, H. W. E., and Willoughby, R. M. (1938) *J. Urol.* **40**, 135.
White, J. W. (1893) *Ann. Surg.* **18**, 152.
Zuckerman, S. (1936) *Proc. R. Soc. Med.* **29**, 1557.
— and Parkes, A. S. (1936) *Lancet*, **1**, 242.

PROGNOSIS IN ACUTE NEPHRITIS IN CHILDHOOD

A FURTHER NOTE

BY K. H. TALLERMAN, M.C., M.D. Camb., F.R.C.P.

ASSISTANT PHYSICIAN TO THE CHILDREN'S DEPARTMENT, THE LONDON HOSPITAL; PHYSICIAN TO THE INFANTS HOSPITAL, LONDON; AND

JOHN H. BURKINSHAW, M.R.C.S.

(*From the Children's Department, the London Hospital*)

IN 1931 a follow-up study was carried out by one of us (Tallerman 1932) on a series of 27 children who had had an attack of acute nephritis in the three-year period 1927–29 inclusive; 25 of them had survived, and 2 had died during the acute attack. At the time the report was made, only 4 of the 25 survivors were considered to show any evidence of persisting renal damage. The present note records a second follow-up study of the original series of cases carried out after a minimal period of some eight years had elapsed from the time of any of the original attacks of acute nephritis.

FIRST FOLLOW-UP EXAMINATION

In the first review of these patients the degree of recovery was assessed after a clinical examination, including estimation of blood-pressure, and certain investigations had been carried out. These latter consisted of analysis and microscopical examination of an early-morning non-catheter specimen of urine, estimation of blood-urea, and the phenolsulphon-

phthalein-excretion and urea-concentration tests. Judged by these criteria the degrees of recovery were classified, on a critical and conservative basis, under the following headings:—

Complete recovery: clinical condition, urine, blood-urea, and tests of renal function all normal.

Recovery: clinical condition, blood-urea, and tests of renal function normal, but a cloud of albumin present in the urine, which, however, contained no casts or abnormal cells.

Probably complete recovery: clinical condition, urine, blood-urea, and urea-concentration test normal, but excretion of phenolsulphonphthalein diminished.

Renal damage: evidence of renal impairment.

The results were as follows:—

	Cases
Complete recovery	12
Recovery	6
Probably complete recovery	3
Renal damage	4
Total	25

SECOND FOLLOW-UP RESULTS

Between November, 1937, and June, 1938, a similar follow-up study was undertaken. All the original 25 patients who had survived were sent for,

RESULTS OF FOLLOW-UP OF 16 CHILDREN SOME EIGHT YEARS OR MORE AFTER ACUTE NEPHRITIS

Original case no.*	Sex	Present age	Former result	Present abnormality	Present result
2	F	15	C R	Cloud of albumin in urine	R
3	F	18	C R	" " " "	R
4	F	13	C R	Cloud of albumin and occasional red cells in urine	R
6	F	15	C R	Nil	C R
9	F	16	R	Trace of albumin in urine	R
10	M	15	R	History of further exacerbations of nephritis in March and May, 1933, and June, 1934 Aortic 2nd sound accentuated B.P. 125/90 Urine: S.G. 1·007; heavy cloud of albumin Blood-urea 0·129% Urea-concentration up to 0·96 per cent. only P.S.P.: only a trace excreted	R D
12	M	13	R	Nil	C R
13	M	18	P C R	Trace of albumin in urine	R
14	F	13	C R	Nil	C R
15	M	16	? R D	Said to tire easily and has exercise restricted No abnormality in urine	C R
16	M	13	C R	Nil	C R
17	F	12	C R	Trace of albumin in urine	R
18	F	11	Some R D	Urea-concentration up to 2·3 per cent.	? R D
21	M	12	C R	Trace of albumin in urine	R
22	F	13	P C R	Tachycardia; B.P. 150/90; no other abnormality. B.P. and tachycardia thought to be nervous	P C R
23	F	12	P C R	Trace of albumin in urine	R

* See *Lancet*, 1932, **2**, 66.

All the patients were in good health and showed no abnormal symptoms, except in the 3 cases where it is specifically stated.
C R = complete recovery; R = recovery; P C R = probably complete recovery; R D = renal damage.

but only 16 attended. Of the 9 who defaulted 7 could not be traced, and 2 were unable to come up for re-examination on account of their work but were apparently in perfectly good health. The same investigations were made now as in the previous study, and a similar classification of the findings was adopted. The accompanying table shows the results, which may be summarised as follows:

	Cases
Complete recovery	5
Recovery	8
Probably complete recovery	1
Renal damage	2
Total	16

It will be seen that 10 of the 16 patients re-examined have changed the category in which they were originally placed.

COMMENTS

The number of cases classed as "complete recovery" has apparently decreased since 1931. An important point to note in this connexion, however, is the fact that, of the 8 cases now classified as "recovery" on account of a cloud of albumin in the urine, 4 were girls over the age of 12 years, who had formerly shown no abnormality. Since the urine examined was a non-catheter specimen, the source of the albumin may well have been vaginal rather than renal. It is possible, therefore, that these 4 cases should really belong to the class "complete recovery." One of these girls (case 4) showed an occasional red cell in the urinary deposit, but this, in view of her age and of the absence of symptoms and of urinary casts, was regarded as of no real significance.

Case 10 was formerly classed as "recovery" on account of the findings being normal except for a cloud of albumin in the urine. This boy now has considerable impairment of renal function. He was, however, readmitted to hospital in March, 1933, and was then found to have definite renal damage. A diagnosis of subacute nephritis was then made, and he has had acute exacerbations with hæmaturia since.

Case 18 was formerly thought to have some renal damage, on account of an impaired excretion of phenolsulphonphthalein and the presence of a trace of albumin in the urine. She remains still in the class of "renal damage" on account of a slightly diminished urea-concentration, although the other findings are now all normal. The evidence of renal damage here is perhaps more of academic than of real significance.

Case 13, a boy formerly classed as "probably complete recovery" owing to a slight impairment of excretion of phenolsulphonphthalein, now shows a trace of albumin in the urine, a finding that gains significance because of his sex.

In delivering a prognosis critical consideration must always be given both to any impairment of renal function and to albuminuria, although really slight deviations from normal in the former may not be of any significance, and albuminuria may be orthostatic and does not seem necessarily by itself to be a matter of serious prognostic importance.

Whereas case 12 formerly had a trace of albumin in the urine and was therefore classed as "recovery," the child now shows no abnormality and in consequence is promoted to the category of "complete recovery."

The fate of those of the original series who failed to attend the recent follow-up investigation must be a matter of conjecture. Two of them, as has been said above, are known to be alive and at work; they were both classed as "complete recovery" in the 1931 investigation. Of the other 7 patients, 2 at that time showed some evidence of renal damage,

3 a trace of albumin in the urine, and 2 complete recovery.

SUMMARY

A further follow-up examination has been made of 16 of the 25 cases of acute nephritis reported in THE LANCET (Tallerman 1932). Of the 16 children seen at least eight years after their acute attack, only 1 shows definite evidence of renal damage. In 1 other some degree of damage may possibly exist.

We are indebted to Dr. A. G. Maitland-Jones for permission to report such cases as were under his care and to Dr. P. N. Panton, director of the London Hospital clinical laboratories, in which the special investigations were carried out.

REFERENCES

Tallerman, K. H. (1932) *Lancet*, **2**, 60 (editorial comment p. 80).

THE RÔLE OF OBSTRUCTION IN FATAL PULMONARY EMBOLISM

BY ROBIN PILCHER, M.S. Lond., F.R.C.S.

PROFESSOR OF SURGERY IN THE UNIVERSITY OF LONDON; DIRECTOR OF THE SURGICAL UNIT, UNIVERSITY COLLEGE HOSPITAL, LONDON

THE lack of correlation between clinical features and post-mortem findings in fatal pulmonary embolism must be apparent to all who study this accident. Many have commented on the occurrence of sudden or rapid death in the presence of a degree of obstruction thought to be compatible with life, though survival of a patient for many hours in spite of gross obstruction has attracted less attention. One main branch of the pulmonary artery may be ligatured without killing a patient and without untoward symptoms. Removal of a pulmonary embolus rarely saves a patient's life. In animals it seems almost impossible to reproduce the picture of human pulmonary embolism by methods in which obstruction of the main vessels is attempted. It is not surprising therefore that the fatal outcome in pulmonary embolism has been attributed to other causes than mechanical obstruction.

Villaret, Justin-Besançon and Bardin (1936) reject obstruction as a cause and invoke reflex disturbances set up by the impact of the embolus. From their animal experiments, in which the nearest approach to the picture of pulmonary embolism as seen in man was obtained with small emboli, they infer that small emboli are a more likely cause of sudden or rapid death than large. Many papers have been written on these experiments and their clinical application, and a summary of this work can be found in a small book recently published by Villaret (1938). Others regard spasm of the pulmonary artery as the important factor, the spasm being a reflex set up by the embolus. Such spasm can certainly be seen in peripheral arterial embolism, but I have not found any direct observation of it in pulmonary embolism. This theory does not rule out obstruction as a cause of death, but minimises the contribution of the embolus itself to the obstruction.

The application of these theories to the pathology and therapeutics of pulmonary embolism in man rests on the assumption that the embolus does not kill by simple mechanical obstruction of the pulmonary circulation. The purpose of this paper is to examine the validity of this assumption. This is the more important since the rejection of the obstructive theory has been followed by the elaboration of treatment aimed at the postulated reflexes. Thus Villaret and his colleagues rely mainly on the vigorous administration of sympatheticomimetic drugs, while Denk (1936) and others employ antispasmodics, notably preparations of papaverine, both claiming good results. Now the majority of diagnosed embolisms are not fatal and it is natural that any form of therapy should give a good survival-rate. It has yet to be shown that these remedies can save a case from a fatal outcome, or indeed that they reduce the mortality of embolism. In cases reported by Denk in which papaverine failed, failure was due to obstruction of the pulmonary circulation. I shall attempt to show that this is the rule and not the exception in *fatal* cases.

Bardin (1937), one of Villaret's co-workers, states that it is exceptional to find the embolus in the pulmonary artery or in one of its main branches, a bifurcation of a lobar branch being the usual site of arrest. Unless this statement is true the application of the experimental work of the French group to human pathology lacks any reasonable basis. Bardin further states that the large branched clots found in the pulmonary artery are formed in situ and are not emboli. He does not explain, however, how these clots become coiled and folded upon themselves as they are so often found. He cannot conceive how such a branched clot can pass without hindrance through the vena cava, the auricle and the right ventricle. The answer is that sometimes it cannot. I have several times seen a clot continuous through the heart from the vena cava to the pulmonary artery. In no less than 15 cases in my series was the clot continuous through the ventricle into the artery.

ANALYSIS OF 130 FATAL CASES

At University College Hospital in the decade 1929–38 pulmonary embolism was found in 130 out of 2861 post mortems. It was not the sole or even the chief cause of death in all, but all have been included in order to study the effect of small emboli as well as large. The clinical histories of the cases have also been examined. The points to which attention is directed are: (1) the size and site of the clot, with reference to its obstructive effect; (2) the mode of death; (3) the general condition of the patient. The last point seems to have been overlooked by those interested in discounting the importance of obstruction. The oft-repeated observation that the surgeon can ligature one main branch of the pulmonary artery has little bearing on the average case of fatal pulmonary embolism. I doubt if more than 10 per cent. of patients who die of embolism would be regarded, as fit for this intervention by a surgeon. So few of them are good lives; still fewer are free from debilitating illness. It is not reasonable to expect a patient with even a slight bronchopneumonia, or a patient who a few days before has had a major operation, to tolerate the same degree of pulmonary obstruction as a healthy subject.

The site of the clot was recorded in all cases. The following are the findings:

Clot in the main pulmonary artery (of which 15 extended into the heart)	46
Clot in both main branches	26
Clot in one main branch	23
Clot in branches on both sides	25
Clot in branches on one side	10
Total	130

Of the 46 cases in the first group, in 2 the clot was small, leaving 44 in which the clot was obstructive.

In 3 cases of clot in one main branch there was also clot in many smaller branches of the opposite side. Thus, out of 130 cases, there were 73 in which there was complete, or nearly complete, obstruction of the pulmonary circulation. It must be remembered that in any case which survives for a few hours secondary coagulation thrombosis takes place round the embolus, and may convert an incomplete obstruction into a complete one. I have previously drawn attention to the possibility of survival for several hours in the presence of a very large embolus (1938).

The mode of death was unfortunately not recorded in all cases. In only 84 of the 130 were there useful notes on this point. Three types of cases are seen: sudden death, rapid death, gradual death. The first includes instantaneous death, which is rare, and death within ten minutes. Rapid death means death within a period of more than ten minutes and less than an hour. Gradual death means death within any period longer than an hour.

In the obstructive and non-obstructive groups we find:

	Obstructive group (cases)	Non-obstructive group (cases)
Sudden death* ...	30	6
Rapid death	15	2
Gradual death ...	15	16

* Duration of survival uncertain in some recorded as sudden.

With regard to the general health of the subjects it appears that in the whole series of 130 cases there were only 43 in whom at the time of admission a return to health could have been expected if there had been no embolism. In an additional 9 expectation of life was fair, these being mostly operations for cancer in old people. Of the 43 good lives there were 11 under forty-five years of age.

The distribution of the healthy subjects in the obstructive and non-obstructive groups is of interest:

	Obstructive group			Non-obstructive group		
	Total	Good lives	Fair lives	Total	Good lives	Fair lives
Sudden death ...	30	10	3	6	1	1
Rapid death ...	15	9	2	2	1	0
Gradual death	15	8	2	16	3	1

Among the sudden deaths in the obstructive group there was only one good life under forty-five.

These figures are, I think, too small to draw definite conclusions about the influence of general condition on the rate of death, but in 30 sudden deaths there are 10 good lives, while in 30 rapid and gradual deaths there are 17. This does suggest that the healthy patient is killed less rapidly, and this may be an encouragement to those who favour embolectomy.

Turning now to the non-obstructive group we find that, with the exception of one death during operation, there were no examples of sudden death in good lives from non-obstructive emboli. The case of operation death was found to have a small embolus in the main pulmonary artery, and as this patient died under anæsthesia other causes may have been at work. The only rapid death in a case classed as a good life on admission was in a man who had gangrenous pneumonia after operation. He is classed as a good life since he was admitted with nothing worse than a peptic ulcer. There is no recorded example in this series of a sudden or rapid death caused by a non-obstructive embolus in the absence of other important factors. Against this must be set the absence of records of the mode of death in 46 cases, of which 29 were non-obstructive. However, of the whole group of incomplete obstructions, including those in which the mode of death is not recorded—i.e., 57 cases—all except 3 were very ill patients, many with other pulmonary disease or pulmonary infarcts from previous emboli. In the obstructive group, on the other hand, of 73 cases there were 37 with no disease likely to kill other than the embolism. Of these 37 cases 33 were postoperative; the other 4 included 2 cases of apparently idiopathic thrombosis of the femoral vein, 1 case of osteo-arthritis having radiant heat, and 1 of abscess of the ankle. There is therefore a contrast between the obstructive and non-obstructive groups. In the former there are 37 healthy subjects out of 73; in the latter there are 3 healthy subjects out of 57.

CONCLUSIONS

Contrary to Bardin's statement this series shows that it is the exception to find in a fatal pulmonary embolism a clot which is not producing a serious degree of obstruction. When a patient dies after a small embolism there is nearly always other gross disease contributing to the fatal outcome. Fatal pulmonary embolism is not such a serious menace as some make out, for so few of the victims are good lives. There are, however, enough good lives lost from this accident to put not only surgeons but also physicians on their mettle to prevent it and to treat it. If we consider those good lives in which death was due to embolism with no other important contributory cause, we find that in 37 out of 40 the embolism was obstructive. I can see little prospect of saving such cases except by removing the clot. There is here no encouragement for the belief that injecting sympatheticomimetic or antispasmodic drugs can do anything except postpone death for a short time. There is, however, encouragement to practise embolectomy, since in half of the obstructive deaths there was ample time for embolectomy without undue haste, and moreover in the good lives death came slower than in the bad. I have previously written of slowly fatal embolism and this post-mortem study confirms my opinion that if the diagnosis of an *obstructive* embolus can be made with confidence, embolectomy should be undertaken; even if at the onset obstruction is incomplete it is likely to become complete as the result of secondary clotting unless the embolus is rapidly dislodged or fragmented.

SUMMARY

From the records of 130 cases in which pulmonary embolism was found post mortem the following conclusions are drawn:—

1. When a pulmonary embolus is the cause of death it is large enough to cause serious obstruction of the pulmonary circulation.

2. In more than half the cases the embolus occupied the trunk of the artery or both main branches.

3. When death follows a small embolism it can rarely be attributed to the embolus alone.

4. In healthy subjects death from pulmonary embolism is sudden in a minority of cases.

REFERENCES

Bardin, P. (1937) L'embolie pulmonaire, Paris.
Denk, W. (1936) *Zbl. Chir.* **1**, 2.
Pilcher, R. (1938) *Lancet*, **2**, 942.
Villaret, M. (1938) Le traitement des embolies pulmonaires, Paris.
— Justin-Besançon, L., and Bardin, P. (1936) *Bull. Soc. méd. Hôp. Paris*, **52**, 936.

AUTOPSY INCIDENCE OF PULMONARY EMBOLISM

By Thomas H. Belt, M.B. Toronto
SENIOR ASSISTANT IN PATHOLOGY, BRITISH POSTGRADUATE MEDICAL SCHOOL, LONDON

For some years I have been dissecting the pulmonary arteries with special care in routine autopsies, and have found an unexpectedly high incidence of pulmonary embolism. The technique, which has been described elsewhere (Belt 1934b, 1936), consists essentially of opening the secondary and tertiary divisions of the pulmonary arteries. By this means many cases of embolism are disclosed which would otherwise be missed. Emboli of the lungs are among the most elusive of autopsy findings, and as Ceelen (1931) has pointed out, the frequency with which they are uncovered at autopsy tends to vary with the vigilance of the observer. Many, I believe, are mistaken for autochthonous thrombi. In his extensive inquiries into the incidence of embolism in London, Pilcher (1937) has collected a surprising number of cases and has suggested that the real incidence is probably greater than current statistics indicate. I am speaking now of the familiar type of embolus—namely, a gross red blood-clot which has come from a vein and lodged in the lung. Septic and other minute forms of emboli are excluded from this discussion.

A rough but serviceable distinction may be made between major and minor embolism. If a half or more of the pulmonary circulation be occluded, we call it a major embolism and regard it, for purposes of certification, as either the main or the contributory cause of death. Anything less than that is a minor embolism. It often happens that a major embolism may result from a shower of relatively small emboli. They pass through the main pulmonary arteries and only become impacted in the secondary or tertiary branches. This is the type of case that can be brought to light with surprising frequency if one is on the look-out for it.

There is a general tendency to underestimate not only the frequency but the significance of the smaller type of embolus, which causes most of the hæmorrhagic infarcts of the lung, as I hope to show in another paper, and is many times more frequent than autochthonous thrombus in the pulmonary arteries.

INCIDENCE IN DIFFERENT CLINICAL GROUPS

My observations now run to nearly 3000 autopsies, and of this number at least one in ten has shown pulmonary embolism of major or minor degree. About two-thirds of the cases are major embolism and a third minor. The greater number are bed-ridden patients beyond middle life, suffering from congestive heart-failure (group 1) or cachetic states (group 2), and the embolism is merely the superadded incident which hastens death. Only about a quarter of these embolism cases are of the dramatic type (group 3) in which sudden death supervenes out of a clear sky. But the phenomenon of thrombo-embolism seems to be essentially the same no matter the type of case or whether it is of major or minor degree. Therefore an analysis of the lesser cases represented by groups 2 and 3 may help to throw light on those tragic instances of major embolism which follow sometimes in the wake of surgical operation or childbirth. The earlier investigations were made in Toronto (Belt 1934a, 1936), but it has been found that emboli can be demonstrated just as frequently here and in the same sort of cases. My first 225 autopsies in this department yielded 29 instances of pulmonary embolism. Some details of this series are set down briefly in the accompanying table. Practically the same observations apply to this series as to the earlier ones I have reported. The majority are medical rather than surgical cases. Two-thirds of them are instances of major embolism, and about half show gross infarcts of the lungs.

ANALYSIS OF 29 CASES OF PULMONARY EMBOLISM

—	Group 1 Heart-failure	Group 2 Cachetic	Group 3 Sudden death	Totals
Average age ..	54 years	62 years	59 years	—
„ weight ..	119 lb.	104 lb.	162 lb.	—
Medical cases ..	8	10	2	29
Surgical „ ..	0	1	8	
Major embolism ..	6	2	10	18
Minor „ ..	2	9	0	11
Infarction of lung..	6	5	5	16

The origin of the emboli is usually to be found in thrombosed veins of thigh or pelvis. The figures for the present series are as follows: femorals 15, iliacs 10, brachial 1, jugular 1, undetermined 2. Veins of the right leg appear to be affected about as often as those of the left and not infrequently both are thrombosed. Usually the thrombosis is of the "silent" or so-called "spontaneous" sort, without evidence of phlebitis, and it is more than likely to escape notice during life.

Groups 1 *and* 2.—Of the present series 8 had congestive failure and 11 others were more or less chronic invalids with various fatal affections, such as malignant neoplasm and pulmonary tuberculosis. In practically all of these there was evidence of chronic vascular congestion, and one gets the impression that most of them suffered from a slackened velocity of venous blood flow. The crucial observations of Blumgart and Weiss (1928) lend support to this impression. They have shown how the venous pressure rises and circulation-time increases when the heart is failing.

Group 3.—This group is made up chiefly of post-operative cases. Their expectancy of life was reasonably good up to the time of the embolic seizure. In the present series 5 were convalescing from laparotomy, 2 from herniotomy, and 1 from fractured femur. These cases also offer circumstantial evidence of a prolonged circulation-time. Here the heart is not necessarily at fault, but there is good reason to suppose that there is a local lag in the venous flow from the legs, the point where the emboli often arise. Indeed there are several reasons: the long column of blood in the veins from the lower extremities; restriction of muscular movements in legs, abdomen, and diaphragm after abdominal operation; and pressure effects on the inferior vena cava due to postoperative meteorism. Apparently the only recorded observations on circulation-time in the lower extremities are those of Frimann-Dahl (1935), who by an ingenious method of venography has determined a very marked lag in the blood flow through the saphenous and femoral veins in a series of post-operative cases.

Thus one can point to the probability of a prolonged circulation-time in the majority of cases of thrombo-embolism. No-one would suggest that it is the only factor responsible for venous thrombosis, but it seems to be an important factor in the development of the dangerous type of venous thrombosis and one which is perhaps amenable to treatment.

MECHANISM OF THROMBUS FORMATION

There are probably three factors at work in the highly complex mechanism of thrombus formation: damage to the vessel wall, increased coagulability of the blood, and decreased velocity of flow. Thrombosis probably does not take place without at least two of these factors acting together. I am in no position to shed any light on the parts played by damage to the vessel wall and by increased coagulability of the blood in this series of cases. I have examined dozens of these thrombosed veins under the microscope without determining any particular lesion in the vessel wall. Sometimes the thrombus is loosely attached to the intima by a bland hyaline material; sometimes it is partly organised. But there is usually no evidence of inflammatory reaction. Yet there probably is a lesion at the point where the thrombus starts. It may be only a minute inconspicuous eruption like that on the heart valves in rheumatic disease and therefore not easy of recognition once the thrombus is laid down. Whatever be the parts played by these two factors, we know that the formation of redundant red fibrin-clot is much favoured by stasis, and it is this type of clot rather than the white platelet coagulum with which we have to contend in the phenomenon of thrombo-embolism.

SUMMARY

Careful dissection of the lungs in routine autopsies on adults reveals a much higher incidence of pulmonary embolism than is commonly recognised. The phenomenon is to be observed more frequently in medical than in surgical cases. The thrombus from which emboli are likely to arise is usually formed in the larger veins of the thigh or pelvis without obvious concomitant phlebitis. In most cases of thrombo-embolism there is evidence of prolonged circulation-time.

I am indebted to Prof. William Boyd, of Toronto, and to my present chief, Prof. J. H. Dible, for the encouragement they have given me in the pursuit of this study, and to Sir Frederick Menzies, medical officer of health for the county of London, for permission to publish records of cases from Hammersmith Hospital.

REFERENCES

Belt, T. H. (1934a) *Amer. J. Path.* **10**, 129.
— (1934b) *Canad. med. ass. J.* **30**, 253.
— (1936) *J. tech. meth.* **15**, 39.
Blumgart, H. L., and Weiss, S. (1928) *J. clin. Invest.* **5**, 343.
Ceelen, W. (1931) in Henke and Lubarsch's Handbuch der speziellen pathologischen Anatomie, Berlin, vol. iii, p. 59.
Frimann-Dahl, J. (1935) *Acta chir. scand.* **76**, 1.
Pilcher, R. (1937) *Brit. J. Surg.* **25**, 42.

"... It is impossible to calculate the number of casualties in the next war, but I don't think the proportion is going to be any higher than it was at the end of the last war. We are not expecting large numbers of casualties among civilians from air-raids. We are taking every precaution to protect our cities, of course. But we don't think that any country is going to bomb civilian populations."—Major BRUNO BRANDI of the German Army Medical Service, in an interview given to the *New York Times*, May 11.

NICOTINIC ACID IN ENDEMIC GLOSSITIS

BY I. KATZENELLENBOGEN, M.D. GRAZ

(From the Skin Department of the Bicur Holim Hospital and Outpatient Department of Kupat Holim, Jerusalem)

IN 1928 I published an account of epidemic glossitis developing during the winter in Palestine mainly in agricultural settlements where the diet was badly balanced and often insufficient (Katzenellenbogen 1928a, b). The signs were swelling of the papillæ of the tongue, particularly the fungiform papillæ, frequently inflammation of the angles of the mouth, and thick coating of the back of the tongue. The symptoms were severe pain in the tongue on taking sour or salty food, excessive salivation alternating with extreme dryness of the mouth, and in a few cases pain in the throat. There was little intake of nourishment in spite of a good appetite. Grooving of the tongue was seen in 80 per cent. of the patients and thickening of the epithelium between the grooves was found in the cases with frequent relapses. In most of the cases pneumococci grew in cultures from scrapings of the tongue, but, as I stated at the time, "There is no doubt that a monotonous diet, consisting mainly of tinned food and pulses, predisposes to the development of glossitis."

I maintained my interest in this condition, but the number of cases fell from the high figures of 1926–27 (when more than 100 came under my observation) and during the next ten years, which saw a considerable improvement in nutrition in the settlements, glossitis of this kind was rare, most of the patients being poor. In 10 cases an estimate of vitamin C in the blood and urine showed nothing abnormal, and treatment with vitamin C produced no cure.

A FURTHER OUTBREAK

In November and December, 1938, I again noted a considerable increase in the number of cases of glossitis, and 24 patients (18 men and 6 women) were kept under constant observation. They all showed the symptoms above described; 2 had an affection of the gall-bladder, 3 complained of worms, 1 had a duodenal ulcer, and 1 was in the sixth month of pregnancy. These patients belonged to the middle classes and said that there had been no appreciable change in their diet in the past year. Thus, 16 patients said that owing to adverse economic conditions they had to eat less food than before. Only 1 patient (who was pregnant) said that she consumed a large quantity of milk and eggs. The diet of the others consisted of pulse, rice, bread, little butter, no milk, no eggs, and meat once or twice a week; but all maintained that the change in diet had been one of quantity and not of quality.

I was particularly interested in this question of nutrition, for much work on diseases of the tongue has been published in recent years showing a connexion between glossitis and a lack of vitamin B_2 (Aykroyd and Krishnan 1938). The fact that in the dog black-tongue, and in man pellagra, can be cured by a diet rich in vitamin B_2 (yeast, eggs, liver), and that conversely the condition can be brought about by administering Goldberger's maize pellagra-producing diet 323, must point to a connexion between the pathological appearance of the tongue and the B_2 factor. Ishikawa (1937) in Japan, Aykroyd (1938) in India, and others reported cures

by the administration of liver, eggs, and yeast to patients with inflammation of the tongue and angles of the mouth and known to subsist on an ill-balanced diet. Elvehjem and others (1937, 1938) published an account of the treatment of black-tongue with nicotinic acid, and this was followed by the successful treatment of human pellagra with nicotinic acid (Spies 1938). This induced me to treat the glossitis in the same way.

CASE-RECORDS

CASE 1.—A mason, aged 23, had complained of severe pain in the tongue for the last two weeks. The angles of his mouth were inflamed and covered with crusts. His tongue was grooved, the margins being somewhat furred, the surface varnished, and the papillæ at the tip much swollen. His diet had consisted of rice, pulse, meat once a week, eggs rarely, little fresh vegetables, and no milk. Soreness had increased in the last week. The patient could take only warm fluids. He was given nicotinic acid 50 mg. thrice daily. Three days later there was no soreness. There has been no appreciable clinical change, but the patient can now eat everything—even oranges, which hitherto had caused much pain.

CASE 2.—A clerk, aged 30, had had an intestinal complaint, said to be a duodenal ulcer, for several years. He had soreness of tongue, which was grooved, its borders being clean, its centre furred, and the papillæ much swollen. Considerable improvement followed treatment with nicotinic acid. Interruption of treatment induced a return of symptoms. A further course was given of nicotinic acid 50 mg. four times daily. Pain completely disappeared. The patient said that his digestion had not been so good for years. The only attendant discomfort was an unpleasant sensation of heat half an hour after taking nicotinic acid.

CASE 3.—A married woman, aged 28, six months' pregnant, had had soreness of the tongue six weeks. Her tongue was grooved, with swollen papillæ, slight coating of the surface, and thickening of the epithelium. The patient was given liver, yeast, and milk for a week. Her condition became worse. Nicotinic acid 50 mg. four times a day was given. The tongue symptoms disappeared. Interruption of treatment brought a return of symptoms. There was transient pain in the region of the stomach.

CASE 4.—A clerk, aged 35. Soreness of the tongue first appeared when he was in an agricultural settlement twelve years ago. Since then he had had pain almost every winter, especially on taking sour foods. He often had the sensation as of an open sore on the surface of the tongue. All papillæ were greatly swollen. He was treated with liver, yeast, and eggs. There was slight improvement a week later, followed by a recrudescence of severe pain in the tongue, and angles of the mouth. The patient was unable to sleep and was compelled to keep his mouth always open. There is a striking improvement forty-eight hours after treatment was begun with nicotinic acid 50 mg. four times a day.

CASE 5.—A woman, aged 21, employed in a provision shop, said that she had enough food at her disposal but suffered from loss of appetite and from abdominal pain. Two weeks ago hoarseness had set in, and three days ago severe pain in the tongue. Laryngological examination showed inflammatory reddening of the vocal chords. Her tongue was slightly grooved, particularly at the edges, and the papillæ were swollen. Nicotinic acid 50 mg. four times a day was given. Hoarseness and lingual pain disappeared after forty-eight hours.

As against 21 cases which reacted successfully there were 3 cases in which treatment with nicotinic acid produced no improvement. For example:—

CASE 6.—An unskilled labourer aged 20, had a grooved tongue, swollen papillæ, dryness at night, and excessive salivation during the day. His tongue had white, bluish, and bright red patches. He was given 50 mg. of nicotinic acid four times daily, with no improvement. Increase of the dose to 50 mg. eight times a day brought no success.

COMMENTS

Of our 24 cases 21 showed a striking improvement in symptoms on the administration of nicotinic acid. I believe this variety of glossitis to be caused by a deficiency of nicotinic acid. Case 2 resembles that described by Manson-Bahr and Ransford (1938). Manson-Bahr believes that the skin manifestations of pellagra do not appear in temperate climates; the signs of the disease may be limited to stomatitis and diarrhœa. Stannus (1936) says: "Peculiar soreness of the angles of the mouth; angular stomatitis with a marginal glossitis are perhaps among the earliest signs of pellagra and may anticipate more active symptoms by many years." Stannus would like to include in the pellagra group the cases of glossitis or stomatitis described in warm countries, including Palestine. Other authors—e.g., Mackie (1938)—are of the opinion that "Lesions of the tongue are early indication of pellagra."

The clinical picture of the stomatitis I describe is reminiscent of that of the tongue in the acute stage of pellagra (Prinz and Greenbaum 1935), but it is confined to glossitis, with the addition sometimes of soreness of the angles of the mouth and sore-throat. Other signs of pellagra, such as dermatitis, diarrhœa, and dementia, never appear. Thus, 14 patients treated in 1926 for severe glossitis were observed over a period of twelve years and showed no signs of pellagra. The gastric juice was examined in 10 cases, of which only 1 showed achylia. Examinations of stools showed *Ascaris lumbricoides* in a few cases but no schistosomes, unlike what is frequently found in Egypt and is said by Egyptian authors to cause secondary pellagra.

It is not at all clear when soreness of the tongue appears. Pellagra is not infrequently seen in Palestine, and here, as in Egypt, it comes in spring and autumn, when the characteristic skin condition usually appears on face, neck, and hands (Alport et al 1938). Mild cases of pellagra show clinical improvement in winter. Endemic glossitis is confined to winter. The theory, advanced a few years ago, that glossitis may be related to consumption of unripe oranges is untenable. There are cases in which the eating of oranges made the patient aware of soreness of the tongue. Of 80 cases of glossitis investigated 50 had not eaten oranges at the time when symptoms appeared.

The success of treatment with nicotinic acid supports the argument that what is present here is a deficiency disease, which might perhaps be included in the "pellagra fruste" group. As regards some of the unfavourable effects accompanying the administration of nicotinic acid, Mackie (1938) says: "It has been my experience that the drug (ac. nic.) should be used with caution in treating patients presenting lesions of the tongue." Apart from reddening of the face and a sensation of warmth immediately after administration, we found no discomfort worth mentioning. Even in the case of a pregnant woman, in which administration of the drug had to be temporarily suspended owing to epigastric pain, the same dose given after an interval was well tolerated. This is true not only for small doses, such as are generally employed, but also for large doses up to 0·5 g. We have rarely used such doses, for we have found that patients who do not react to the smaller dose will not show appreciable improvement with a larger dose.

SUMMARY

Small doses of nicotinic acid (50 mg. four to six times a day) brought about considerable improvement in 21 out of 24 cases of the stomatoglossitis that appears in Palestine in winter. In this condition there are no signs of pellagra apart from soreness of the tongue, sometimes also of the angles of the mouth, and sore-throat. To prevent relapse nicotinic acid must be administered for a long period.

REFERENCES

Alport, A. C., Ghalioungui, P., and Hanna, G. (1938) *Lancet*, **2**, 1460.
Aykroyd, W. R., and Krishnan, B. G. (1938) *Indian J. med. Res.* **25**, 643.
Elvehjem, C. A., Madden, R. J., Strong, F. M., and Woolley, D. W. (1937) *J. Amer. chem. Soc.* **59**, 1767.
— — — — (1938) *J. biol. Chem.* **123**, 137.
Ishikawa, K. (1937) *Zbl. Haut- u. GeschlKr.* **58**, 72.
Katzenellenbogen, I. (1928a) *Arch. Derm. Syph., Berlin*, **154**, 269.
— (1928b) *Trop. Dis. Bull.* **25**, 996.
Landor, J. V., and Pallister, R. A. (1935) *Trans. R. Soc. trop. Med. Hyg.* **29**, 121.
Mackie, T. T. (1937) *J. Amer. med. Ass.* **111**, 587.
Manson-Bahr, P., and Ransford, O. N. (1938) *Lancet*, **2**, 426.
Prinz, H., and Greenbaum, S. S. (1935) Diseases of the Mouth and their Treatment, Philadelphia, p. 287.
Spies, T. D., Bean, W. B., and Stone, R. E. (1938) *J. Amer. med. Ass.* **111**, 584.
Stannus, H. S. (1936) *Trop. Dis. Bull.* **33**, 729, 815, 885.

LONG-LATENT INFECTION WITH *PLASMODIUM OVALE*

BECOMING MANIFEST AFTER YELLOW-FEVER VACCINATION

BY F. MURGATROYD, M.D. Lpool, M.R.C.P., D.T.M.

G. M. FINDLAY, C.B.E., M.D., D.Sc. Edin.

AND

F. O. MACCALLUM, M.D., B.Sc. Toronto

(*From the Wellcome Bureau of Scientific Research London*)

WHILE investigating what was alleged to be a severe reaction associated with vaccination against yellow fever, the following case of malaria due to *Plasmodium ovale* was brought to light. It was remarkable for its long incubation and for the severity of the attack, and because for some time its true nature was unrecognised.

On Nov. 15, 1938, an apparently healthy young man who eight months previously had returned from a four months' tour in West Africa and who proposed to return there, was vaccinated at the Wellcome Research Institution against yellow fever by a single subcutaneous injection of a pantropic tissue-culture virus.

Nine days later he wrote saying that six hours after vaccination he had had an attack of shivering which had recurred with increasing severity on alternate evenings, the last three attacks being accompanied by progressively severe vomiting; he not unnaturally attributed this to the vaccination. In reply, it was pointed out that the symptoms were not typical of any reaction due to the inoculation but rather of some infection, such as malaria, and he was advised to call his doctor. Four days later the doctor communicated that the patient was still having severe rigors with high fever, and that he was jaundiced with bile in his urine. The doctor was advised by telephone to take blood films for examination and to administer quinine immediately. The following morning one of us saw the patient and found him very anæmic, jaundiced, and with a spleen palpable about three inches below the costal margin; a rapid examination of the blood showed a number of malarial parasites.

Although the periodicity of the ague was rather too well marked for a malignant tertian infection, the severity of the illness, the jaundice and the severe vomiting in a patient from West Africa suggested clinically this type of malaria; but well-grown trophozoites and some young schizonts were seen in the blood films, and on examining the slides more carefully in the laboratory later a pure infection with *P. ovale* was found. Unfortunately, owing to the circumstances of the illness no precise biochemical observations were made, but clinically it was exceptionally severe for an *ovale* infection; it was interesting to observe that, as in cases previously recorded, the paroxysms occurred in the evening.

It was a little surprising to find the patient suffering from malaria as he had never before had the disease and had been in England for the last eight months. Until the present attack he had never suffered from the slightest indisposition either while in Africa or subsequently, so that it is reasonable to consider the long-latent period as a protracted incubation period rather than an interval between a primary attack and a relapse. Although long incubation periods may be unusual they are by no means rare in benign tertian malaria, and periods from a few months up to a year or more have been described by numerous observers. Much less seems known about unusually long incubation periods for other species of malaria parasites. The only record of prolonged incubation period for quartan malaria appears to be the case described by Morenas and Brun (1936) where the primary attack occurred nine months after the probable date of infection. There appear to be no records of unusually long incubation periods for infections with *P. falciparum* or *P. ovale*. Sinton, Hutton and Shute (1939) in a study of 108 induced primary infections with *P. ovale* concluded that no evidence of prolonged primary latency could be found.

It must be added that while in Africa and during the subsequent month the present patient took 5 grains of quinine daily, and then began to omit the dose on an increasing number of days each week so that at the end of the second month home he ceased to take any. An antimalarial drug may somewhat delay the onset of a primary attack but in this case, however, six months had elapsed since the patient had taken quinine, and the part played by the drug in determining the long incubation is a matter of speculation. It seems unlikely in one who had never previously had an attack of malaria that parasites could have been present in considerable numbers at any time without giving rise to symptoms. Colonel Sinton informs us that *P. ovale* produces a particularly high and long-lasting immunity and it may be, therefore, that a small number of such parasites, controlled originally by quinine and insufficient to produce a clinical attack, were nevertheless sufficient to stimulate an immunity which, although failing to cure, protected the patient for several months from symptoms, until for some reason or other the balance of immunity became upset.

The final point of interest is that for some time the true nature of the attack was unrecognised, and it was thought to be a reaction associated with vaccination against yellow fever. The majority of people immunised at the Wellcome Research Institution by inoculation with the present strain of tissue-culture virus have little or no reaction. A number experience towards the end of a week slight malaise, backache or headache lasting a few days, but records of actual fever are extremely rare. From time to time, however, complaints are received attributing to the

vaccine various disturbances, some of which are obviously imaginary while others represent genuine errors of interpretation. On a number of occasions, patients complaining of what they consider to be reactions have been found to be suffering from entirely different conditions, and notably from malaria.

It is generally believed, of course, that various factors may precipitate a malarial relapse and in an attempt to determine whether there is any specific relationship between yellow-fever immunisation and malarial relapse, an experiment was carried out on three rhesus monkeys (*Macaca mulatta*) although it is fully recognised that monkey malaria cannot be exactly equated with human infections. The animals were infected with *P. knowlesi* and during the subsequent severe reactions were treated with quinine so that the infection in each case became latent. Subsequently the monkeys were immunised against yellow fever, but no evidence was obtained that this in any way influenced clinical relapses. A considerable proportion of patients who are immunised against yellow fever have been already exposed to malarial infection, and it seems probable that vaccination against yellow fever is no more than one of a number of non-specific factors which may sometimes either precipitate a malarial relapse or permit a latent infection to become manifest.

The present case illustrates the necessity for keeping such a possibility in mind, since failure to recognise, for example, an incidental malignant tertian infection may have serious results; and it emphasises the importance of a proper investigation of all patients from the tropics who present more than a negligible reaction after any inoculation.

REFERENCES

Morenas, L., and Brun, J. (1936) *Bull. Soc. Path. exot.* **29**, 597.
Sinton, J. A., Hutton, E. L., and Shute, P. G. (1939) *Trans. R. Soc. trop. Med. Hyg.* **32**, 751.

CLINICAL AND LABORATORY NOTES

LARGE CALCULI IN THE POSTERIOR URETHRA

A REPORT OF TWO CASES

BY ASHTON MILLER, M.A., M.B. Camb., F.R.C.S.
RESIDENT SURGICAL OFFICER AT ST. PETER'S HOSPITAL FOR STONE, LONDON

CALCULI in the posterior urethra are of two varieties: those that become impacted there after passing down from a point higher in the urinary tract where they have been formed, and those that are formed in situ. These latter, if one excludes prostatic calculi and calculi formed in a pouch or diverticulum associated with the posterior urethra, are not common, and the two cases described below, both in patients admitted to St. Peter's Hospital within a period of six weeks, are remarkable for the large size of their stones.

Previous examples of this condition have been published by Bourdillat (1869), Englisch (1903), who analysed 405 cases of urethral calculus, Morton (1906), and Monsarrat (1912), all of whom wrote before radiography was in general use. Huddy (1927) gave a very complete account of these stones, and Joly (1929) an exhaustive account with suggestions for treatment.

CASE-RECORDS

CASE 1.—A labourer, aged 36, gave a history of a severe kick in the perineum twenty years ago, after which he was in bed for ten days and passed much "gravel." He recovered and was well until four years ago, when he began to have difficulty in micturition, pains in the hips and perineum, and nocturnal incontinence—symptoms which gradually became worse until admission. He had frequency of micturition, hourly by day, and two-hourly by night; he could pass only a very poor stream, which was subject to sudden stoppages, and passed a few drops of blood after each act. His general health had been good, and he gave no history of venereal disease.

On examination he appeared healthy: lungs, heart, and alimentary canal normal; blood-pressure 150/90. Nervous system normal. The skin of the penis was excoriated by infected urine; rectal examination revealed a stony hard mass, the size of a tangerine orange, occupying the normal position of the prostate gland and projecting backwards into the rectum, the mucous membrane of which was freely movable over it. It was easily palpable bimanually but was firmly fixed. The prostate could not be felt but appeared to be thinned out over the surface of the mass. The urethra admitted an 8/10E. steel sound only as far as the external sphincter, where it could be felt to grate against a stone. No instrument could be passed into the bladder. The urine contained pus, blood, and phosphatic crystals in large quantities; the blood-urea was 36 mg. per 100 c.cm.

Radiography showed a large pyriform calculus lying in the position of the posterior urethra and projecting into the region of the bladder (fig. 1). Intravenous pyelography showed a mild bilateral obstructive hydronephrosis, but good secretion from both sides.

FIG. 1—Radiogram showing large calculus in posterior urethra of case 1.

Suprapubic lithotomy under general anæsthesia was performed on Jan. 2, 1939, by Mr. J. Swift Joly. The upper portion of the calculus could be seen projecting into the bladder and was inadvertently broken off. The internal meatus was almost closed, but through it the calculus could be easily felt. The posterior margin of the internal meatus was divided with scissors in the middle line, but this did not give sufficient access; therefore the anterior margin was also divided in a similar manner. With large lithotomy forceps and a finger within the rectum pushing upwards, the stone (fig. 2) was removed with great difficulty, the process being somewhat similar to the enucleation of an adenoma of the prostate. There was moderate bleeding; so the bladder wall was sewn up round a Marion's tube, which was removed on the fourth day.

Suprapubic drainage was continued until the twenty-first day, when the tube was removed and the patient began to pass water naturally. The wound was dry on the twenty-fourth day, and on the twenty-eighth day, when he was discharged from hospital,

there was found to be no residual urine. He was seen again in the outpatients' department two months later, when micturition was normal.

CASE 2.—A man, aged 42, of no occupation, gave a history of a mining accident in Sunderland twenty-nine years ago, when he sustained a fractured pelvis and a ruptured urethra, and was in hospital for some eight months. His mother refused to have anything done in the way of treatment for his urethra. He developed a sinus in the right groin, through which he always passed urine, being able to a certain extent to control micturition, but in the course of years he developed sinuses, which discharged a mixture of pus and urine, in his left groin and his perineum. During the last five years the right leg had "grown shorter," and he had been unable to walk much, though his general health had remained remarkably good. He gave no history of venereal disease.

On examination he appeared pale and unhealthy; lungs, heart, and alimentary canal were normal; blood-pressure 140/80. A sinus ½ in. above the right inguinal ligament had been kept patent by an indwelling catheter, which he removed when he wished to micturate; other sinuses, discharging purulent urine, were present in Scarpa's triangle on the right side and on both sides of the perineum. The right leg was wasted, with considerable apparent shortening, and the only movement obtainable at the right hip-joint was about 2 degrees of flexion, limited by periarticular adhesions. The nervous system was normal. The blood-urea was 28 mg. per 100 c.cm. Rectal examination revealed a stony hard mass, exactly similar to that described in case 1, except that it was slightly larger and its upper limit could not be reached with the finger. The urethra was completely impermeable at the external meatus.

FIG. 2—Photograph (actual size) of calculus removed from posterior urethra of case 1.

Radiography showed a large pyriform shadow in the middle line behind the symphysis pubis, a healed fracture of the pelvis, and a normal right hip-joint. Intravenous pyelography showed no abnormality in the upper urinary tract, with good secretion from both kidneys; the shadow of the bladder was higher than normal, and below it could be seen the shadow of the calculus with that of the catheter lying adjacent to it.

Suprapubic cystostomy under general anæsthesia was performed on Feb. 14, 1939, by Mr. J. Alban Andrews. When the bladder was opened, precisely the same condition existed as in case 1; the stone, lying in the posterior urethra, could be easily palpated through the almost closed internal meatus. When the internal meatus was opened, the stone was found to have an anterior prolongation wedged beneath the symphysis pubis, thus making removal by the suprapubic route impossible without endangering the safety of the rectum. The bladder was therefore closed with suprapubic drainage.

A fortnight later, perineal lithotomy was performed by Mr. Andrews. Access was extremely difficult owing to the adduction of the right femur and to the very narrow pubic angle due to the old fractured pelvis, but eventually the lower half of the stone was exposed and broken up with a hammer and chisel. This allowed the upper half to be reached and dealt with in a similar manner. Light packing was placed in the wound, which was dressed daily. The patient was considerably shocked after the operation but after the first twenty-four hours was remarkably little affected. Three weeks after operation the sinuses were healed and he was draining urine well from a permanent suprapubic tube. The mobility of his hip-joint had increased in all directions, and he was once more able to walk.

COMMENTARY

In these two cases several facts, common to both, are very striking.

(1) *History of trauma.*—The development of these stones appears to depend on some injury to the posterior urethra, either by direct violence—as in case 1—or indirect, such as a spicule of bone from a fractured pelvis—as in case 2.

(2) *Length of history.*—In case 1 twenty years, and in case 2 twenty-nine years elapsed before treatment was sought.

(3) *Size of the stones.*—It seems remarkable that the narrow space of the posterior urethra, bounded by the elastic prostate gland, could ever be expanded to the extent necessary to include such stones.

(4) *Condition of the patient.*—The comparatively unaffected general condition of the patient appears to be due to the absence of renal infection in both cases and to the gradual building up of resistance to the infecting organisms.

(5) *Difficulty of operation.*—Removal by the transvesical route needs extensive division of the internal sphincter and introduces the risk of pelvic cellulitis, whereas removal by the perineal route, although it undoubtedly gives more room, almost invariably leads to incontinence, according to Joly (1929), who is quoting Legueu (1921). In case 2 this risk was disregarded, for the patient's anterior urethra was already impermeable, and he was bound in any case to wear a permanent suprapubic tube; consequently he unconsciously provided a very interesting comparison between the two methods of approach.

I am indebted to Mr. Swift Joly, Mr. Clifford Morson, and Mr. Alban Andrews for their kind permission to publish these two cases.

REFERENCES

Bourdillat, H. (1869) Calculs de l'urèthre, Paris.
Englisch, J. (1903) *Arch. klin. Chir.* **72**, 487.
Huddy, G. P. B. (1927) *Brit. J. Surg.* **15**, 307.
Joly, J. S. (1929) Stone and Calculous Disease of the Urinary Organs, London.
Legueu, F. (1921) Traité chirurg. d'urologie, Paris, 2nd ed., vol. II.
Monsarrat, K. W. (1912) *Brit. med. J.* **1**, 3.
Morton, C. A. (1906) *Ibid*, **2**, 294.

ACCORDING to the official German medical weekly, the German and Italian Governments have agreed on principles for the import of medical preparations, especially the traffic in medical specialities from Germany to Italy and vice-versa. When these principles are observed this traffic is to be free of duty and the imported preparations are not to receive less favourable handling than those produced in the country.

BILATERAL DISLOCATION OF THE HIP WITH FRACTURE OF THE PELVIS

BY R. H. GARDINER, B.M. Oxfd, F.R.C.S.E.
SURGEON TO THE ROYAL BUCKINGHAMSHIRE HOSPITAL

DISLOCATION of one hip is uncommon, and the following case of simultaneous bilateral dislocation may, I think, be unique.

A lorry driver aged 28 was admitted to the Royal Bucks Hospital on Jan. 11, 1939, following an accident in which his vehicle skidded and ran head on into a stone wall. His legs and arms were pinned against the lorry dashboard and the bricks which were piled on the lorry pushed the back of the driver's cabin forwards so that a large part of the weight of the bricks was transmitted to his back. This caused the whole of his trunk to be carried forwards, and both of his hips were dislocated backwards.

The patient was a big, powerful man. He was in a state of profound shock and complained of severe pain in the region of the lower lumbar vertebræ and sacrum. Both legs were semiflexed at the hip- and knee-joints. The knees were pressed tightly together and it was impossible to separate them on account of muscle spasm. He was tender in both groins. The knees were covered with shallow abrasions. He was unable to move the toes in either foot and there was complete loss of sensation from just below the left knee downwards to and including the toes. The bladder was apparently not distended, but as he did not pass urine within two hours a soft rubber catheter was passed and 10 oz. of normal urine withdrawn.

A diagnosis of a spinal injury or a severe pelvic injury was made, and when the patient had sufficiently recovered from the shock a radiogram of the spine and pelvis was taken. This showed posterior bilateral dislocation of the hips with fractures running (1) across the right acetabulum; (2) through the right sacro-iliac joint; (3) through the left side of the pubis. There was no displacement.

Treatment for shock was instituted and the same evening under deep general anæsthesia both hips were reduced. The right leg was fixed on a Thomas splint with extension and in 24 hours all pain had disappeared. He remained in bed for 10 weeks, making a good recovery, except for loss of sensation and weakness of the extensor muscles of the left leg. This partial paralysis, due no doubt to injury to the left sciatic nerve (common peroneal division), is slowly yielding to treatment.

In this case the findings seemed to point to a severe spinal injury, though it was impossible to test the reflexes or carry out a detailed examination on account of the severe pain the patient experienced on the slightest movement. The fact that both hips did dislocate no doubt prevented the far more severe injury of a fractured spine. The lack of any gross displacement of the fractured pelvis is also remarkable. It will be interesting to see whether further cases of such an injury will be recorded in these days of severe motor accidents.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF UROLOGY

AT the annual general meeting of this section held on May 25 and 26 the chair was taken by Mr. H. P. WINSBURY-WHITE, the president, and a discussion on

Radiotherapy in Urology

was opened by Mr. B. W. WINDEYER. All types of renal carcinoma, he said, remain a surgical problem when operable: he had found no records of cure by radiotherapy alone, but an intensive course of high-voltage X rays may diminish recurrences and is a valuable palliative measure in inoperable cases. Bony metastases are very radiosensitive. For Wilms tumour he advised a pre- and post-operative course of high-voltage X rays. In inoperable cases of carcinoma of the bladder, about half of the total, the insertion of radon seeds, preferably by the cystoscopic rather than the suprapubic approach, except in advanced cases, has so far been more successful than X rays, the surface application of radium, or the insertion of radium needles. Favourable results have been reported with high-voltage X rays by Gunsett and Ferguson. Supervoltage X rays (800–1000 kV) and low-voltage high-intensity X rays with the Chaoul type of tube are still sub judice. When the ureter is obstructed, with consequent renal infection, no method of radiotherapy is adequate. In many cases of cancer of the cervix involving the base of the bladder complete regression can be obtained by intracavitary radium and high-voltage X rays. Muir (1934) has shown that, compared with other methods, the prognosis of cancer of the prostate is improved most after high-voltage X rays. In some of Mr. Windeyer's cases aggravation of cystitis has been obviated by preliminary endoscopic resection. Hansonn of Stockholm and American workers have published large series of cases of cancer of the penis treated by radiotherapy, but there are few reports from this country. At the Middlesex Hospital during 1929–35, in 15 out of 21 cases the penis was rendered free from carcinoma by radiotherapy, though necrosis developed in 3. After 1934 they had used primarily a cylindrical mould, which makes it possible to distribute the dosage evenly; with this method the treatment can be spread over a fortnight, and necrosis is less likely. An occasional small area of residual growth may be treated by local radium implantation or diathermy excision. No case was complicated by retention of urine, cystitis, or contraction of the urinary meatus. Mr. Windeyer favours amputation for the deeply infiltrating cases, and he thinks that metastases, which usually involve the inguinal glands first, should be excised when operable, but if they are inoperable high-voltage X rays or teleradium may have a palliative effect. Dean has indicated that enlarged inguinal glands are sometimes inflammatory and subside during treatment of the primary lesion, so that unless there is clinical evidence of metastasis it is justifiable not to treat the inguinal regions but to keep the patient under observation. During 1932–39, 9 out of 11 cases of tuberculous epididymitis (all with other, and the majority with pulmonary, tuberculous foci) were treated successfully by radiotherapy: 9 by surface application of radium, the other 2 by X rays.

Mr. STANFORD CADE favoured a wide suprapubic cystotomy and the insertion of radium needles, rather than the cystoscopic insertion of radon seeds, for carcinoma of the bladder. Cystotomy revealed the surface extent of the tumour and thus enabled a rational decision to be made; if necessary diathermy, ureteral transplantation, and improved drainage could be carried out, and the sides, bed, and margin of the tumour could be needled. The cystoscopic

method does not give these advantages, and with radon seeds uniform intensity over the period of treatment is not obtained. If conditions permit, the delivery of say 8000 r to the tumour will produce complete but not permanent regression. A burn can be avoided by giving this at an optimum dosage-rate of 35–45 r/hr., thus prolonging the treatment to ten days. In a few cases he had obtained complete disappearance of a recurrence in the suprapubic scar by using the four-gramme radium unit. Inguinal glands without superadded infection may respond to teleradium or surface radium by plaques. Radium gives poor results in recurrence after surgical excision alone. He had treated 51 cases of carcinoma of the penis by interstitial radiation and 28 were still alive, the survival-rates ranging from five to ten years in 15 cases. Surgery is necessary in cases with involvement of the urethra or corpora cavernosa, in the infiltrating type, and in cases at a late stage, whereas the papillary and to a lesser extent the ulcerative type and the early case are suitable for radium. Definite rules can be applied to the treatment of the lymphatic area—thus, if the inguinal glands are impalpable irradiation is valueless; if palpable glands do not disappear rapidly on irradiation they should be excised; and fixed glands are best treated by teleradium. During 1924–37 he had treated 12 cases of carcinoma of the female urethra, all proved histologically: 6 are alive and well with survival periods of from five to eleven years. Needles were always implanted round and not inside the canal, and in some cases intravaginal cavitary radiation was applied. No case required a suprapubic cystotomy, but one developed a stricture requiring urethral dilatation for five years following treatment.

Dr. GEORGE VILVANDRÉ thought that X-ray therapy in carcinoma of the prostate was purely palliative: he put the expectation of life in untreated cases at from six months to five years, and remarked that one patient of his with bone metastases is at present working as a carman. In inoperable cases of renal carcinoma he was convinced of the value of deep X rays and suggested their use postoperatively to prevent recurrence: they were also of value in stimulating granulation of a sinus remaining after removal of a tuberculous kidney.

Mr. WALTER W. GALBRAITH reported some regression of the growth after X-ray therapy in 6 cases of renal tumour, 17 cases of vesical neoplasm, and 6 cases of carcinoma of the prostate: all the cases were inoperable.

Dr. STRUTHERS FULTON advocated the intracavitary X-ray method, which irradiated a small volume of tissue with a correspondingly higher dosage, in growths of the bladder not exceeding 3–4 cm. in diameter.

Mr. CLIFFORD MORSON said that of 5 cases of carcinoma of the penis which were irradiated ten years ago and apparently cured, only 1 (warty type) is now alive, and amputation for recurrence was performed in the other 4. During the past twenty years 1000 cases of carcinoma of the prostate had been seen at Whipps Cross Hospital: the view there was that surgery and radiotherapy were equally disappointing for this growth, and they now left the primary growth untreated until a suprapubic cystotomy was required. The average length of life in such cases was five years.

Mr. MOORE PATTERSON discussed testicular neoplasms and quoted statistics showing that the five-year survival-rates with different methods of treatment were: radical excision, 6·6 per cent.; orchidectomy only, 17 per cent.; radiation only, 20 per cent.; and orchidectomy plus irradiation, 55 per cent. He thought that orchidectomy should be performed even when metastases are present, and that in inoperable cases irradiation is a valuable palliative, especially for relief of pain.

The PRESIDENT brought out certain points in connexion with the suprapubic implantation of radium needles in carcinoma of the bladder—namely, the necessity for preoperative indwelling catheter drainage in certain cases, the necessity of transplanting a ureter if the growth is in the vicinity of its orifice, and the value of a permanent suprapubic apparatus which is worn for from four to six months (judged by cystoscopy) to obviate fistula formation. The operative mortality, he said, is low compared with partial cystectomy.

Mr. H. W. SYMONS said that long-standing multiple papillomatosis may be rendered suitable for fulguration after one or two courses of deep X rays.

Mr. ARTHUR JACOBS had treated some wide-based growths of the bladder by diathermy followed by radium (5500–6000 r). Of 13 cases 4 show no recurrence after from two and a half to five years.

Mr. JOCELYN SWAN had treated 7 cases of vesical cancer by fulguration and irradiation by the Chaoul tube during the last eight months, the bladder being drained by continuous irrigation. In 2 cases so far the ulcer has healed, judged by cystoscopy.

Mr. R. OGIER WARD thought that radon seeds had a place in the treatment of some cases of vesical cancer—for example, in those with recurrence after partial cystectomy. The seeds could be placed in a good position with a panendoscope; it was unusual to get cystitis and only 2 of his cases had formed stones.

Mr. T. J. MILLIN mentioned the desirability of a biopsy with loop before treatment of cancer of the bladder, and the value of the Stedman suction pump afterwards.

Conservative Treatment of Hydronephrosis

Mr. E. W. RICHES, on the second day, spoke on the treatment of hydronephrosis. He considered his results from conservative surgery by four methods—namely, (1) division of vessels, 6 cases; (2) minor plastic operations, 4 cases; (3) major plastic operations, 31 cases; (4) sympathectomy, 13 cases. The results, judged by abolition of pain, radiological improvement, functional improvement, and absence of infection, were good in 6, 3, 19 and 11 cases respectively in these groups, making a total of 72 per cent. good results in all groups. The period since operation ranged from a few months to eight years. Secondary nephrectomy had been necessary in about 10 per cent. of the 54 cases. In hydronephrosis his suggested procedure is first, to control the infection; then, in the case of a small hydronephrosis, to do a sympathectomy if there is no mechanical obstruction, to divide moderate-sized vessels if there is external obstruction, or to do a minor plastic operation if there is ureteral stenosis. For a large hydronephrosis he advocates a major plastic operation if infection is absent or controllable, and nephrectomy if infection is gross and the other kidney is sound. Sympathectomy may be combined with any of the other conservative procedures.

Mr. VICTOR DIX had performed a radical operation in 34 cases (nephrectomy in 32) and a conservative operation in 26 cases. In the latter group out of 6 cases in which he had divided the lower-pole vessels 5 lost their symptoms, with a perfect pyelogram

in 4; out of 10 cases in which the pelvis was excised with reimplantation of the ureter (von Lichtenberg) 5 cases lost their symptoms, with a perfect pyelogram in 2, and there were 2 known failures; and out of 8 cases in which a temporary nephrostomy was performed with a plastic procedure 7 lost their symptoms, with a perfect pyelogram in 4 cases. In some cases the result by conservative surgery was indifferent, though the patient was free from symptoms. He tended to do more nephrectomies and fewer conservative operations.

Mr. HAMILTON BAILEY discussed the results of drastic resection of the pelvis followed by end-to-end nephro-ureteric anastomosis. The renal vessels if large should be saved when possible, and the nephrostomy opening should be made through the calyx nearest the surface. Of 17 cases who had attended for investigation 15 were perfectly well judged by cystoscopy, the indigo test, pyelography and bacteriology; 6 others were perfectly well but refused cystoscopy; and 4 more were in full work though in 2 function was poor. He had only known 1 real failure, which was a case of renal fistula. The same operation may be employed to remove a cast calculus from the renal pelvis. Von Lichtenberg's operation he thought "unsound from a plumber's point of view," since the only way to get the necessary dependent drainage is by end-to-end anastomosis. Provided drainage is free, even cases of pyonephrosis are no trouble.

Mr. W. E. UNDERWOOD urged that the ideal of conservatism is to tackle the early hydronephrosis due to nervous imbalance before the secondary mechanical factors come into play, and he described an apparatus by which cases suitable for denervation can be determined and by which the end-result of treatment may be assessed. The apparatus transmits contractions of the renal pelvis to a water manometer (via a ureteric catheter), the normal range of movements being 0·5–2 cm. of water: these are recorded on a drum. In cases where the suitability for sympathectomy is in doubt spinal anæsthesia may reveal that the pelvis is able to contract regularly. On the theory that the pelvis may be subject to deficient parasympathetic impulses rather than overaction of the sympathetic he suggested it may be worth considering splanchnic neurectomy in place of perirenal sympathectomy. This would obviate peripelvic fibrosis should subsequent pyeloplasty be necessary, there is no bleeding from the renal pedicle and no ill after-effects. Nerve trunks rather than individual fibres had to be divided, so that it was less extensive and perhaps more efficient.

Mr. J. B. OLDHAM showed very satisfactory pyelograms from 3 cases of hydronephrosis, five, six and seven years after renal denervation alone. He thought that the essential lesion was neuromuscular inbalance at the pelvi-ureteric junction and that kinks and twists were a later development. He was impressed by Riches' and Underwood's results with sympathectomy and believed other good results were due to incidental renal denervation. He was against dividing aberrant renal vessels.

The PRESIDENT maintained that nephrectomy is the best remedy for hydronephrosis because when expansion of the minor calyces is present to any extent it is likely to continue. Plastic procedures, which will not cure the condition, are useful when it is already or is likely to become bilateral. His opinion of von Lichtenberg's operation was that although the pain is alleviated the hydronephrosis persists, obstruction at the pelvi-ureteric junction returns and renal function is decreased. Nowadays he resects the pelvis along the lower border and shapes it to give good dependent drainage, keeping clear of the pelvi-ureteric junction; the latter is then dilated, the pelvis restored, and the wound closed with a rubber drain down to the suture line. This is applicable when the pelvis only and not the calyces are dilated.

Mr. T. J. MILLIN mentioned a case in which after removing 44 pea-sized stones from the lower pole of a solitary kidney he left the patient with a permanent nephrostomy: if more stones form only one night's hospitalisation is necessary.

Mr. H. V. WELLS described a method of avoiding ureteric transplantation in a plastic operation by converting part of the pool of the pelvis. If sutured closely, nephrostomy—which is to be avoided if the pelvis is not infected—is unnecessary.

Mr. DIX in reply said he still thought that abnormal lower-pole vessels are sometimes the cause of hydronephrosis. In some cases he was certain he had not divided the nerve-supply and yet they had improved.

Mr. HAMILTON BAILEY considered nephrostomy—which was not included before von Lichtenberg's operation—the turning-point in success. The stricture at the pelvi-ureteral junction should be excised.

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION

AT the quarterly meeting of this association held on May 23, with Dr. J. R. GILMOUR, the president, in the chair, five papers were read on the use of

Recreational Therapy

in mental disorders and mental defect, the first three dealing with psychiatry, the others with mental deficiency.

Dr. P. K. MCCOWAN emphasised the fact that recreational therapy differed from recreation as much as occupational therapy from occupation, and that it was very beneficial, especially when conducted by trained recreational therapists. It should always be regarded as a means to an end and not as an end in itself. It brought the schizophrenic into touch again with reality and diverted the melancholiac from his depressive thoughts. Four forms of this treatment were especially beneficial: (1) physical drill in every ward for ten minutes before breakfast; (2) gymnastic exercises, preferably in a separate gymnasium or in the dining-hall, each class numbering not more than 12–20 and working for not more than forty minutes, starting with Swedish drill for ten minutes and then going on to other gymnastic exercises and ball-games or badminton, classes being divided into elementary, intermediate, and advanced, and the elementary class being given a minimal amount of drill; (3) swimming in a bathing-pool (extremely popular and sometimes the only recreation acceptable to patients); and (4) cycling, some of the patients at the Crichton Royal, Dumfries, being allowed away from the hospital for a couple of hours or so.

Dr. J. M. SPEER said that dancing was preferable to other games because the latter had a limited appeal to the female patients. Physical training was valuable, but again the appeal was limited. Folk-dancing had four advantages over ordinary ballroom dancing: (1) it was never stereotyped and consequently was not apt to become monotonous or semi-automatic—there was always something new to learn; (2) it enabled the sexes to mingle more freely than they could in the ballroom; (3) there was a mild form of discipline

and social coöperation in the figures; and (4) it appealed to the æsthetic taste. Classes were held for an hour each week in the winter. Reluctant patients were allowed to be passive spectators at first, and many soon asked to be allowed to join in. A uniform for the dancers was an added attraction (men dancing in white flannels). Folk-dancing appealed especially to schizophrenics.

Dr. T. P. REES (whose paper was read in his absence) said that at Warlingham Park Hospital, Surrey, the physical training was conducted by an ex-army physical trainer who was also a qualified mental nurse. This form of recreational therapy was extremely useful for rousing patients from lethargy, improving their physique, encouraging their social activity, and, above all, producing muscular relaxation, especially in catatonics. For the last-mentioned purpose passive rhythmic movements were practised in time to music (a catatonic standing idle with a broom began to sweep the carpet in time to the music and ceased with it). The proper grading of patients for recreational therapy was difficult but essential, different forms of exercise being suited to stuporose and maniacal patients. Every patient on discharge was advised to attend continuation classes.

MENTAL DEFICIENCY

Dr. J. T. CURRAN gave some account of the scouts, guides, and concert parties instituted at Lennox Castle, Stirlingshire. Adult males, aged 18 or more, with a mental age of at least 8 (I.Q. 60) and a three months' record of good behaviour, were allowed to apply to join the rovers. Patrols were named after clans, and a roll of honour was kept of famous members of each clan (there was some difficulty with the Macphersons about Aimée). The moral training of the alleged amoral defectives was a pill that had to be heavily gilded. For this purpose scout law was ideal; it was simple and positive, with no "thou shalt not." The rovers were given a hut of their own, each clan having a corner for which it was responsible. They were encouraged to use tools and to cook their meals out of doors occasionally. Aments learned better through their hands than through their ears. The curriculum included a weekly hike combined with nature-study. Camp in the summer was a reward for good behaviour during the previous winter. The better patients should be, and were, allowed to attend the social activities of normal outside scouts and to compete with them; but it was unfair both to the patients and to the normal scouts to allow those patients to attend who carried their diagnosis in their faces. Scouting was useful not only to the patients but also to the medical officer; it enabled him to become much better acquainted with them, being somewhat akin to play therapy in the case of children, by which they were disinhibited. One great advantage was that there was no need to spend money on a trained recreational therapist. Concert parties were also very valuable, because defectives usually liked the limelight, and unless they were given some such outlet their self-assertiveness might lead to bad behaviour to attract attention. Recreation was thus provided not only for actors, singers, and dancers but also for dressers and stage-carpenters.

Dr. N. H. M. BURKE spoke on team games and other athletic pursuits at Cell Barnes, St. Albans. Mental defectives differed from other categories of patients in mental hospitals in that they were young in body, years, mind, and experience; their prospect of leaving the institution was extremely small; and usually their parents and other relations had lost all interest in them. The colony therefore had to be parent, friend, teacher, and nurse to them. In such a colony the task was not the reawakening or restoration, but the initial development, of social activities and responsibilities. Luckily most forms of recreational therapy did this. Team games were of great value, and it was good for the patients to recognise that in some activities they could hold their own or even beat the normal staff and outsiders. Physical training should be recreational—i.e., interesting and amusing—and never compulsory. The improvement in posture due to physical training was so great that it was sometimes hard to recognise the patients. The annual display not only gave them self-confidence but also was a very valuable form of publicity and propaganda.

BRITISH ORTHOPÆDIC ASSOCIATION

THE spring meeting of this association was held at the Robert Jones and Agnes Hunt Orthopædic Hospital, Oswestry, on May 5 and 6. In a presidential address entitled *Some Aspects of Bone Surgery* Mr. NAUGHTON DUNN surveyed the measures adopted to secure bony union in ununited fractures and in diseased and damaged joints. As a substitute for bone-grafting he advocated the subcortical exposure of the bone ends and a thorough refreshing producing multiple chips with intact periosteal attachments. His lecture was illustrated by many successful results.

Mr. D. MCCRAE AITKEN (London) set out some of his ideas on the *postural function of the muscles of the lower limb*. He emphasised the importance of these muscles in health and disease, not only of the lower extremity but of the body as a whole. In particular he was impressed by the value of the movement of rotation in all activities.

Mr. R. C. MURRAY (Oswestry) gave a paper on *fractures of the head and neck of the radius*. This was a survey of 459 such fractures treated at the Liverpool Royal Infirmary during the ten years 1927–37. Most of them appeared to have been caused by indirect violence. He concluded that conservative treatment usually gives the best results and that operation should be reserved for fractures of the neck irreducible by manipulation, for the removal of a completely detached fragment displaced into the joint, for grossly comminuted fractures and for certain depressed marginal fractures. As a rule complete excision of the head was preferable to partial removal.

In a symposium on *tuberculous joints* Mr. G. T. PARTRIDGE (Chester), Mr. S. THOMPSON (Oswestry), and Mr. MURRAY described a follow-up of the patients treated in the Robert Jones and Agnes Hunt Orthopædic Hospital from 1920 until 1934 for tuberculosis of the sacro-iliac joint (48 patients), of the shoulder-joint (27), and of the knee (322). About a third of those with sacro-iliac disease died within 4½ years of the onset; the remainder were alive and for the most part well. The results of sound conservative treatment appeared to be as good and as lasting as those in which a final arthrodesing operation was performed. Tuberculosis of the shoulder seemed to have a favourable outlook. It usually affected young adults, and there was a long history of vague pain, treatment being seldom undertaken until an abscess appeared. The presence or absence of a sinus had an important bearing on the prognosis, whether the treatment was conservative or operative. Conservative treatment was advisable until the disease was healed, when an extra-articular arthrodesis was a useful stabilising procedure. Tuberculous

arthritis of the knee occurred in about 11 per cent. of all cases of bone and joint tuberculosis treated in the hospital. Primary synovial disease progressed to bone involvement in about 45 per cent. of cases and took on an average about three years to do so. The focal articular type had a high fatality-rate (22 per cent.), owing to subsequent lesions elsewhere. With most extra-articular lesions the prognosis was excellent. In tuberculosis of the knee lengthening of the affected limb was twice as common as shortening.

Prof. E. W. HEY GROVES (Bristol) described a *combined bed frame and splint for fractures of the lower limb*. This consists of a portable tubular frame resembling a Bradford frame. To it is attached an adjustable back-rest and the mattress on it is partitioned to facilitate nursing. The object of the frame is to allow traction to be applied to both lower extremities with the patient in the sitting position. The traction need not be disturbed for transport, for radiography or for such operative procedures as the introduction of a Smith-Petersen nail into a fractured neck of femur.

Mr. J. H. MAYER (London), speaking on the treatment of *Colles's fracture*, said he thought that in as many as half the cases apparently successful reduction and adequate splintage is followed by recurrent displacement. He attributed this redisplacement to supination of the lower radial fragment, which was often not corrected during attempts at reduction. Forcible pronation of the distal fragment was an essential step in manipulative reduction, and should be maintained by including the wrist and elbow in plaster-of-paris.

REVIEWS AND NOTICES OF BOOKS

Carbon Monoxide Asphyxia

By CECIL K. DRINKER, professor of physiology and dean of the school of public health, Harvard University. London: Humphrey Milford, Oxford University Press. 1939. Pp. 276. 25*s*.

Prof. Drinker has a reputation as a physiologist for sound balanced writing, and this important monograph will undoubtedly enhance it. The book, profusely laden with statistics, concerns itself with the various medical aspects of exposure to carbon monoxide—physiology, biochemistry, symptomatology and pathology—and it also aims at wedding these with the industrial aspect. Such treatment provides an ideal forensic review for the medicolegal pathologist, the coroner, and the barrister in criminal and industrial practice. The interest of the book is enhanced by the personal observations and strictures of Drinker himself: his experience as physiologist in the Harvard school of public health and as scientific expert to the American Gas Association has provided him with unparalleled opportunities for acquiring first-hand knowledge, and as a result he can be not only exhaustive and authoritative but also critical—and always readable. Drinker's personal contribution is completed by a section on analytical methods by Julius Sendrey and an extensive and modern bibliography. There is no other modern monograph on CO-poisoning, and for some time there will be no need for another.

A Textbook of Histology

Functional Significance of Cells and Intercellular Substances. (2nd ed.) By E. V. COWDRY, professor of cytology in the school of medicine, Washington University, St. Louis. London: Henry Kimpton. 1938. Pp. 600. 31*s*. 6*d*.

As its secondary title suggests, this book contains much more than an account of the microscopic anatomy of various tissues and organs. After reading a few pages one ceases to consult a textbook or impersonal record of facts and slides into the companionship of a lively observer, indeed a master, willing to put his experience and reading at one's disposal. He looks down the microscope with the eye of a physiologist and calls attention to appearances for which a functional meaning has already been worked out or for which a functional interpretation may be suggested. He makes no apology for this attitude. For example, he says (p. 471) of the cross striation pattern of the myofibrils of voluntary muscle, "They have been studied in the most minute detail in the hope of discovering some logical explanation of the phenomena of contractility. . . . Purely morphological studies have come to an impasse. The tendency is now to concentrate on the experimental analysis of the chemical and physical properties of the fibres. Yet it is important at short notice to be able to correlate the newer findings with what is known of structure." This paragraph will win the confidence of medical students. When they find on the next page a full account of the striation pattern, together with the recent results of micro-incineration studies, they will recognise with gratitude information clearly labelled "to be taken only when required." The reference (p. 475) to the experimental work, as yet unconfirmed, which resulted in the transformation of the smooth muscle of the dog's urinary bladder into striated muscle under the influence of forced activity, gives a spur to the interest of all those who examine this tissue, whether their bias be morphological, biochemical or biophysical. The treatment of this subject of muscle striation is typical; a fine balance has been maintained throughout the book between the functional and morphological aspects of histology.

The plan is not to avoid controversial subjects but rather to seek them out and air them. Prof. Cowdry has succeeded in presenting the evidence fairly and has acknowledged the labours of leading investigators. New techniques are described with references to original papers—for example, the cyclic functioning of the splenic venous sinuses as determined by the translumination of the living organ (Knisely's technique) is clearly set out both in text and figures. The newcomer in the field is constantly made aware that the subject has need of his utmost service. The book acts as a canaliser of energy.

Handbook of Ophthalmology

(3rd ed.) By HUMPHREY NEAME, F.R.C.S., senior ophthalmic surgeon to University College Hospital; surgeon to the Royal London (Moorfields) Ophthalmic Hospital; and F. A. WILLIAMSON-NOBLE, F.R.C.S., assistant ophthalmic surgeon to St. Mary's Hospital; ophthalmic surgeon to the National Hospital, Queen Square. London: J. and A. Churchill. 1939. Pp. 332. 13*s*. 6*d*.

THE object of this book—to present the essential principles of ophthalmology—is achieved. These principles are illustrated in the descriptions of the common ocular disorders seen in daily practice, in the outpatient department and among medical inpatients in a general hospital. The pictures, many of which are in colour, show a number of external diseases and fundus disorders and are mostly admirable. Fig. 153, a drawing of Greeves's operation for ptosis, is, however, inaccurate; the incisions are

incorrect in site, length, and number—there should be only one. In fig. 170, showing expression of the lens, pressure is being made at the wrong site on the cornea and the pupil is too small to facilitate delivery of the lens. A number of small alterations and additions have been made in the third edition. A section has been written on the principles and practical value of contact lenses, and the part played by vitamins in diseases of the eye has been described. Lieut.-Colonel Harold Williamson, I.M.S. (retd.), and Lieut.-Colonel E. W. O'G. Kirwan, I.M.S., have coöperated in modifying and enlarging the chapter on tropical ophthalmology.

The book will continue to serve well the needs of general practitioners and students.

Internal Medicine

(3rd ed.) Edited by JOHN H. MUSSER, M.D., F.A.C.P., professor of medicine, Tulane University of Louisiana school of medicine. London: Henry Kimpton. 1938. Pp. 1428. 45*s*.

THIS third edition maintains the high standard usual in American clinical textbooks: it is a thorough, complete and highly finished production. Much has been rewritten and recent therapeutic advances, both chemical and surgical, have been included. The work makes no claim to the scope of an encyclopædia but the senior student or practitioner will rarely fail to find some mention of the most obscure condition. The contributors are authorities whose opinion counts and the value of each section is increased by brief historical notes and lists of references, mainly American, to amplify the text. The book provides a balanced survey of modern American views.

Handbuch der Virusforschung

(*Erste Hälfte*). Edited by Prof. R. DOERR, Basel, and Prof. C. HALLAUER, Bern. (With the collaboration of Dr. F. M. Burnet, Dr. W. J. Elford, Dr. G. M. Findlay, Dr. M. Haitinger, Dr. M. Kaiser and Dr. W. M. Stanley.) Vienna: Julius Springer. 1938. Pp. 546. RM.66.

KNOWLEDGE of viruses and virus diseases advances so rapidly that books devoted to this subject may be in need of revision as soon as they appear. This one, however, is concerned only with the general aspects of virus research and its technical approach, and it is safe to predict that virus workers will consult it for some years to come. It begins with a historical introduction describing the investigations which led up to the conception of filtrable viruses and then proceeds to a consideration of the nature of these agents. Prof. Doerr has devoted much time and thought to this aspect of virus research, and those who have read his publications or heard him open the discussion on the subject at the International Congress of Microbiology held in London in 1937 know how philosophic is his approach to it. Here he reviews all the available evidence and discusses its bearing on the nature of viruses with admirable balance and detachment. The description of the morphology of viruses begins with an essentially practical account by W. J. Elford of the methods available for the determination of the size of viruses: ultrafiltration, ultracentrifugation and ultraviolet-light photography. This article is concise and clear and is one of the most valuable parts of the book. M. Haitinger discusses fluorescence-microscopy, a recent addition to the technique of the microscopy of viruses, and M. Kaiser writes on methods of staining. His account is comprehensive and in the main adequate, though some of the illustrations, in particular that on p. 280 depicting psittacosis virus stained by Castaneda's method, are not good; the description of this method of staining makes no mention of the modifications by which Castaneda's original procedure has been improved. G. M. Findlay's extensive knowledge of the subject makes his consideration of inclusion bodies and their relationship to viruses remarkably complete. His exclusion of the rickettsia from the virus group would not be generally accepted. When he speaks of "saprophytic" viruses living intracellularly he must surely mean parasitic but non-pathogenic viruses. C. Hallauer discusses the various methods of growing virus in conjunction with tissue fragments, while F. M. Burnet describes the technique of virus cultivation on the chorio-allantoic membrane of the developing hen's egg and the application of this procedure to quantitative virus estimations and the study of immunological problems. Both articles are good, particularly the latter. W. M. Stanley writes on the biochemistry and biophysics of viruses. Those who contemplate applying to their investigations the methods which have resulted in the isolation of heavy virus proteins will find this section valuable, though to the biologist it seems that the conclusion that a certain virus is a heavy protein is sometimes based on insufficient evidence. In a table under the heading "molecular weight" figures are given not only for all viruses but also for bacteria and even red blood-corpuscles; this is rather confusing. Stanley also says that the resistance of viruses to $HgCl_2$ marks them off from ordinary organisms or even bacterial spores. Since W. Bulloch has shown that some bacterial spores may be viable after 646 days' exposure to 1 in 1000 $HgCl_2$ this statement is hardly justified. In general, however, Stanley's section is very good, fully maintaining the high standard of the rest of the book.

Surgery of the Ear

Nelson Loose-leaf Series. Edited by SAMUEL J. KOPETZKY, M.D., F.A.C.S., professor of otology, New York Polyclinic medical school and hospital. London: Thomas Nelson & Sons. 1938. Pp. 468. 60*s*.

THIS book consists of a series of monographs by authorities all of whom, with the exception of Prof. G. Holmgren of Stockholm, hail from the United States. The editor claims with justice that the serious student of otological surgery will find little that will have to be skipped as obsolete, for the book gives detailed descriptions of the most recent opinions and technical procedures. In this respect the chapters on suppurative petrositis by Ralph Almour, on the surgery of facial paralysis by T. G. Tickle, and on surgical therapy in otosclerosis by Holmgren deserve special mention; these supply full practical details by pioneers of surgical methods for conditions whose treatment has made great progress during the last few years. The editor contributes an informative preliminary chapter on the basic factors underlying otitic suppurations, which is an excellent essay in clinical pathology. W. E. Dandy describes the technique of the operation for division of the auditory nerve in the treatment of Menière's disease, though he does not discuss other surgical methods such as injection of alcohol; apparently this chapter was written before the publication of the work of C. S. Hallpike and H. Cairns, for Dandy says that, so far as he is aware, no cases of Menière's disease have been studied at necropsy. The illustrations are numerous and good, and each chapter has its bibliography. The work is of outstanding merit and will be indispensable to practising otologists.

THE LANCET

LONDON: SATURDAY, JUNE 3, 1939

THE PULMONARY EMBOLUS

PULMONARY embolism is a possible complication of any illness. It has attracted most attention as a postoperative or puerperal accident, for as such it may kill patients who are expected to recover and have many years before them. In non-surgical cases it is accepted with greater equanimity, for few of its victims in this category are likely to recover useful health. Hence it is natural that the surgeon and obstetrician should be more concerned about embolism than the physician. But if more is to be learnt about it all its manifestations must be studied. Three basic facts may be recalled; they are familiar enough but seem to be conveniently forgotten from time to time. First, many cases of pulmonary embolism diagnosed with reasonable certainty recover spontaneously; secondly, emboli are often found post mortem when death has been attributed to other causes; and thirdly, thrombosis often occurs without being followed by embolism. Nevertheless thrombosis is the necessary antecedent in every case and at present the main hope of reducing the mortality lies in preventing the thrombosis. Until this hope is realised the problem of treatment remains, and to solve it we need to know how often embolism kills, how it kills, and how far any methods in use prevent it from killing.

Estimates of the incidence of pulmonary embolism differ—not only because of differences in material but also because it is sought with varying care. LERICHE and his collaborators [1] found 225 fatal embolisms in 14,829 autopsies; PILCHER [2] 731 in 36,145; and counting both fatal and non-fatal cases PILCHER found 130 in 2861. Dr. BELT in our present issue reports that in making 3000 post-mortem examinations of unselected cases he has found evidence of pulmonary embolism in no less than 10 per cent. Such careful examination as BELT'S is essential for a reliable estimate of the true incidence of embolism apart from fatalities, and it could be of help in studying the effects of prophylaxis. To study them on the basis of fatalities alone is very difficult since they are infrequent and irregular in distribution. It may fall to the lot of any surgeon to work a year without a death from this cause and then meet with several in a few weeks.

As to how embolism kills opinions again differ. Certain French authors maintain that death is due to reflexes set up by the embolus and that obstruction of the circulation through the lungs is not required. This view, which is ill supported by clinical experience, is mainly based on animal experiments suggesting that small emboli are a greater menace than large. BARDIN [3] has stated that in human pulmonary embolism it is exceptional to find the embolus in the trunk or main branches of the artery, and if this were true it would support the parallel between the human and experimental embolisms. But Prof. PILCHER, who has investigated this point, records this week his finding that in most fatal cases the clot is in the trunk or main branches and there appears to be an insuperable obstruction to the circulation. LERICHE too found that in about two-thirds of the cases there was complete obstruction. Moreover PILCHER failed to find a single case in which the only apparent cause of death was a small embolus. This important difference in observation may be explained by BARDIN'S view that large clots found in the trunk and main branches are formed in situ just before or after death and are not emboli; it probably depends on the criteria used in distinguishing between ante-mortem and post-mortem clots. But it may account for some of the fatalities attributed to small emboli. For instance in one described by WILMOTH and MOTTE [4] death occurred in spite of prophylaxis and treatment according to the reflex theory; a clot was found in a small branch but there is no note of the contents of the main artery.

If there is an obstructive embolus it is hard to see how the injection of antispasmodic or sympatheticomimetic drugs can do anything but delay death a little. Such delay will be of value only if one undertakes rational treatment—i.e., removal of the obstruction. The only means of removal at present is by the operation of embolectomy. PILCHER holds that the good lives lost are nearly all lost through obstructive emboli and these are the cases we are most concerned to save. The report by IVOR LEWIS [5] of his successful case, the first in this country and the twelfth in the world literature, should encourage others to persevere with this treatment until something better is found. OTERO and FERREIRA BERRUTI [6] report a case in which the embolus was found extending from the vena cava through the heart into the pulmonary artery and suggest that such a clot would be difficult to remove; technically the difficulty should not be insuperable, but the importance of this condition is shown by PILCHER'S finding 15 cases in which the clot was partly in the heart. While it seems clear that nothing short of operation can relieve a circulation which is mechanically obstructed, it remains true that death may take place in the absence of gross obstruction, and it is desirable to know what value nonoperative remedies have. For this purpose considerable experience is necessary and a knowledge of the fatality-rate of the condition as a whole. All surgeons are familiar with recovery after

1. Leriche, R., Fontaine, R., and Friedmann, L., *J. Chir., Paris*, 1937, **50**, 737.
2. Pilcher, R., *Brit. J. Surg.* 1937, **25**, 42.
3. Bardin, P., L'embolie pulmonaire, Paris, 1937.
4. Wilmoth, P., and Motte, A., *Pr. méd.*, March 1, 1939, p. 323.
5. Lewis, I., *Lancet*, May 6, 1939, p. 1037.
6. Otero, J. P., and Ferreira Berruti, P., *Bol. Soc. Cirug. Montevideo*, 1938, **9**, 246.

desperate symptoms, and little is known about the natural survival-rate. DENK [7] and VOGEL [8] using injections of Eupaverine have reported small series of cases—some successful, others not. But such reports, though interesting, justify no conclusion about the value of this remedy.

PLACENTAL INFARCTS AND TOXÆMIA

A FEW months ago we drew attention to the work of BARTHOLOMEW and his colleagues of Atlanta, Georgia.[9] They emphasised a relationship between placental infarcts and toxæmia of pregnancy, and in describing the ease with which infarcts may be overlooked they suggested an explanation why the relationship was not established long ago. From an examination of the placentas of patients whom he has never seen Dr. BARTHOLOMEW endeavours to deduce the clinical condition, and the degree of success he achieves entitles his claim to serious consideration. At the same time the correspondence between placental and clinical diagnosis is not perfect, and some rather less straightforward explanation than toxæmia simply from the products of placental autolysis is probable. Later investigations by the same group of investigators,[10] coupled with some older findings, while of great interest in themselves are made the foundation of a theory that we must regard with a certain amount of reserve. This is not because of doubt about the facts, but because the chain of evidence does not exclude alternative possibilities, and the longer the chain the greater its weakness.

The lesions in the fœtal placental vessels are similar to those found in experimental cholesterolæmia, and investigation of 62 coloured adolescent primigravidæ, 24 of whom developed toxæmia, showed that the average blood-cholesterol of the toxic group was somewhat higher than that of the non-toxic group; it is not clear from the plotted points whether or not this difference is statistically significant. The inverse relationship between blood-cholesterol and thyroid activity seems to hold good, and the correlation between basal metabolic rate (B.M.R.) in the third month and toxæmia is suggestive. Not one case of toxæmia was found in 12 members of the group whose B.M.R. was +10 or more; whereas nearly half the remainder, having a normal or subnormal B.M.R., developed toxæmia. This failure of the thyroid to respond to the pregnant state is apparently related to age, none of the group being over eighteen years old. The sequence of events implied is: pregnancy during adolescence—inadequate thyroid activity—increased blood-cholesterol—increased susceptibility of placental vessels to injury—infarction—autolysis—toxæmia. Nevertheless with the onset of symptoms the B.M.R. rose in the toxic group and continued to rise till the end of pregnancy, finishing much higher than in the non-toxic group; there was a concomitant fall in blood-cholesterol. This rise in B.M.R. which is strikingly shown in the published curves is attributed to absorption of autolytic products from the placental infarcts. Guanidine, which might result from the breakdown of arginine, an amino-acid of which the placenta contains an excessive amount, is favoured as the possible immediate cause of the toxic symptoms. It is also suggested as the cause of spasm of the retinal arteries, the degree of which follows closely the severity of the toxæmia. The very high incidence of toxæmia in the adolescent, the occurrence of placental infarcts, the change in B.M.R. from low to high, and the behaviour of the retinal arteries are of great interest, and the suggested relation between them may be correct. It is, however, scarcely necessary to point out that there is little evidence to support exclusively any given sequence of events. Dr. BARTHOLOMEW's insistence that if the toxæmia is the cause of the placental infarcts then infarction should be generalised is countered by an argument brought out in the discussion of one of his papers [11]—namely, that the syncitium is very probably nourished from the maternal side and should therefore be unaffected by lesions of the fœtal vessels. Death of the fœtus may be associated with survival of the placenta, and yet there may be no toxæmia. The two arguments are equally valid in the present state of our knowledge and therefore do not add to or detract from the factual findings. Doubtful points of this kind could be multiplied and raise the possibility of the facts being related in some other way than that suggested by Dr. BARTHOLOMEW.

Another theory of toxæmia, less securely based on evidence, has lately been put forward by PAGE [12] and is noteworthy in this connexion because its starting-point is again the raised incidence of toxæmia in a clinical group—namely, those developing hydatidiform mole. The sequence here is understood to be: "parasitic" action of placenta—necessity for enhanced blood-supply—secretion of pressor substance by placental tissue to increase maternal blood-pressure—improved blood-flow through uterus at the expense of secondary toxic symptoms and hypertension. To a uterus gravid for the first time, a normal placenta might present a problem similar to that of the rapidly growing mole, thus accounting for the increased incidence of toxæmia in primigravidæ. The essence of the theory is a disproportion between placental growth and maternal blood-supply, however brought about. The rather fanciful (and, we imagine, diffident) analogy drawn between the placenta, "the excretory organ of the fetus," and the kidney is anchored to earth only by the slender thread of a pressor placental extract. Since the significance of the renal pressor substance is still sub judice, and since the presence of acetylcholine, a vasodilator, is still on the waiting-list of placental problems, the arguments are far from conclusive. On general grounds it cannot be denied that toxæmia is quite likely to be the result of abnormal

7. Denk, W., *Zbl. Chir.* 1936, **63**, 2.
8. Vogel, A., *Fortschr. Ther.* 1938, **5**, 245.
9. *Lancet*, Jan. 21, 1939, p. 156.
10. Colvin, E. D., and Bartholomew, R. A., *Amer. J. Obstet. Gynec.* April, 1939, p. 584.
11. Bartholomew and Colvin, *Ibid*, 1938, **36**, 909.
12. Page, E. W., *Ibid*, February, 1939, p. 291.

placental activity. Attempts to pin this down to something definite are therefore not open to criticism on the grounds of inherent improbability; but they should be scrutinised carefully for their scientific validity. The chemical constitution of the placenta is different in many respects from that of other organs.

THE VOICE OF NATURE

"SYMPTOMS are universally available; they are the voice of nature." These words of Dr. JOHN BROWN, the author of "Rab and his Friends," are quoted in a lecture in which Prof. JOHN RYLE[1] asks for more careful study of the subjective phenomena of disease. With the aid of instruments and methods of precision, the extent of many morbid changes can be accurately measured. Not so symptoms; yet their appearance often precedes that of signs and if they are intelligently studied and interpreted they may lead to earlier diagnosis.

Although it is true that most of the attributes of a symptom cannot be measured, its temporal qualities at least can be assessed with some degree of accuracy. As an example Prof. RYLE speaks of angina of effort which lasts 2–5 minutes and disappears when the patient stands still. By contrast, the status anginosus of coronary occlusion may last for hours, or return in repeated storms during a period of hours or even days. Between the brief pain of early effort angina and the prolonged pain of cardiac infarction, one meets a pain of intermediate duration—perhaps a quarter of an hour—in people who have had angina for a long time. This is, moreover, induced more readily by effort and we may deduce from it that the vessels have grown narrower or more rigid, or that more of them are affected, so that the effects of myocardial anoxæmia are less easily corrected. Eventually angina may come on even when the patient is asleep, possibly through the influence of emotional dreams or possibly through the deficient oxygenation associated with shallow breathing. Thus in these cases the duration, the time-interval for development, the times of occurrence and (except in the very nervous) the frequency of attacks of pain are all significant. Again, the chief characteristic of the hunger pain usually associated with duodenal ulcer (but sometimes also with cholecystitis, early pyloric carcinoma and certain nervous states) is that it disappears on taking food. If no food or medicine is taken it may last an hour or more but eventually passes off. In the same individual under constant living conditions the duration and food-pain interval are remarkably constant. Hunger pain is absent before breakfast but almost always develops before lunch and again between midnight and 2 A.M.—the longer interval after the last meal being attributable perhaps to the slowing of digestion during sleep. These time-relationships express a specific physiological disturbance which illustrates the natural gastric rhythm. When the pylorus narrows, the food-pain interval alters; the pain appears soon after the ingestion of food in response to the effort of the stomach to overcome the obstruction. Prof. RYLE reminds us that pain in the right iliac fossa has many causes other than appendicitis. Some patients describe their pain as continuous for hours on end and recurring day after day; others describe it as intermittent, occasional and transient. The point to be borne in mind is that neither description fits our conception of any known inflammatory pain. Both types of pain are common in nervous persons and, in both, abuse of purgatives may be a contributory cause. Proctalgia, a rectal spasm, is a more definite example of a neurosis, affecting the overworked and emotionally unstable. It usually occurs in the small hours, lasts but a few minutes, and is unrelated to fullness of the bowel or excess of flatus. Its time-behaviour distinguishes it at once from the pain of rectal carcinoma or anal fissure. Supra-orbital neuralgia, associated with frontal sinusitis, is likewise apt to recur at the same hour every day and migrainous headache tends to show a certain periodicity in any given case.

These temporal qualities are of great diagnostic importance and well repay the time and trouble required to elicit them. The same may be said of other symptoms besides pain. For instance, the duration, frequency and special time-incidence of recurrent loss of consciousness may be of real value in differential diagnosis. Fainting, unlike epilepsy, does not occur in bed at night. Epilepsy is the more likely of the two to return frequently and without the obvious relation to predisposing events which characterises fainting. Pyknolepsy is remarkable for the extreme frequency of the episodes, which may number fifty a day; it affects children before puberty and has a good prognosis. Prof. RYLE recalled a mnemonic informing the student that the hemiplegia of embolism arrives in seconds, of apoplexy in seconds or minutes, of thrombosis in minutes or hours, of inflammation in days, weeks or months, and of tumours in weeks, months or years. Other fruits of temporal observation are that in the absence of pregnancy early-morning vomiting is almost always due to gastritis; that morning diarrhœa points to achlorhydric gastritis; that chronic diarrhœa with 16–20 stools a day suggests ulcerative colitis; and that whereas diurnal frequency of micturition is commonly of nervous origin, nocturia is likely to be caused by organic disease, either local or general.

1. Ryle, J. A., *St. Thos. Hosp. Gaz.* April, 1939, p. 58.

Mr. ALBERT BOYCE BARROW, sometime senior surgeon at King's College and the Royal Free Hospitals, died on Monday as the result of a motoring accident. He was in his ninety-fifth year.

Mr. FREDERICK SWINFORD EDWARDS, who died in London on Monday at the age of 86, joined the staff of St. Peter's Hospital in 1881 and was also consulting surgeon to St. Mark's and the West London. He had been president of the subsection of proctology, Royal Society of Medicine.

We also regret to announce the death on May 29 of Dr. JEAN RENE PERDRAU, pathologist on the staff of the Medical Research Council and an authority on the virus of herpes. He died in Guy's Hospital after a short illness.

ANNOTATIONS

ORANGE JUICE FOR BREAST-FED BABIES

SOME years ago Sir Frederic Still[1] scandalised many of his juniors in the pædiatric world by asserting that orange juice was unnecessary for breast-fed babies "under the conditions of feeding of the mothers which prevail in this country." The younger physicians were inclined to dismiss this as the dictum of one out of touch with modern developments, and they pointed to the fact that breast-fed babies could certainly suffer from deficiency diseases, of which, while scurvy was certainly a great rarity, rickets was not uncommon and iron-deficiency anæmia fairly frequent. Still is, however, supported by Gyllenswärd[2] of Stockholm, who maintained at the Northern Pediatric Congress at Oslo that fruit juice was not only unnecessary but might even be harmful. He gave alternate babies of a group a teaspoonful of orange juice daily from two months to four months of age and thereafter two teaspoonfuls daily, the others receiving only breast milk. An inadequate supply of breast milk, or any intercurrent affection apart from digestive upsets, led to the exclusion of the baby from the investigation. Failure to gain weight is said to be an early sign of vitamin-C deficiency, but there was no evidence that orange juice had any effect on the weight of these children. On the other hand, there was definite evidence that the babies receiving orange juice had more irregular and more frequent evacuation of the bowels, and their stools sometimes showed signs of faulty digestion. Similar investigations were made using lemon juice or tomato juice with similar results, tomato juice seeming to be the least easily digested. Some babies, too, developed various skin eruptions when they were having fruit juice. Gyllenswärd suggests that if child-welfare centres urge the use of orange juice the public may think that breast-milk is not a complete food. He has known babies who lost their taste for the breast when given fruit juice and he even alleges that fruit juice may be responsible for acute infections of the throat. He concludes that if any preventive treatment is required it should be directed towards making sure that the mother's diet contains a sufficiency of vitamin C. Even this is not as simple as it sounds, for in the discussion that followed Gyllenswärd's paper C. W. Herlitz estimated that in the worst cases of maternal undernutrition this would mean giving a lactating mother from four to six oranges daily.

TREATMENT OF AGRANULOCYTOSIS

AT a time when more and more cases of agranulocytosis are being reported, a study of their treatment and mortality is welcome, and it is supplied by Jackson and Tighe[3] in a survey of some 390 cases recorded since 1933. They define carefully what is meant by agranulocytic angina, with its many synonyms, and exclude some cases diagnosed on insufficient data. The ætiology remains obscure, but it is generally agreed that amidopyrine and its congeners have been often responsible. In the absence of treatment the fatality-rate has been nearly 80 per cent., with only a small reduction among those getting general hospital care or "specific" remedies in insufficient doses. Transfusions and X-ray treatment seem to have been useless. In a few cases bone-marrow extract and "leucocyte cream" have been given with results encouraging further trial. Other cases have been treated successfully with adenine sulphate. This material is a degradation product of pentose nucleotide which is known to raise the leucocyte count. According to Jackson and Tighe the mortality among cases treated with pentose nucleotide is only 35 per cent. and they regard this as the most promising direction of treatment.

1. Still, G. F., *Lancet*, 1933, **2**, 1103.
2. Gyllenswärd, C., *Acta pædiatr., Stockh.* 1939, **24**, 348.
3. Jackson, H., jun., and Tighe, T. J. G., *New Engl. J. Med.* May 4, 1939, p. 729.

WELFARE OF THE BLIND

BEFORE the passing of the first Blind Persons Act in 1920 the Government made no special provision for the care of the blind, who were left to the charity of present and past generations. The President of the Local Government Board appointed in December, 1917, a committee to advise him in the necessary action and successive Ministers of Health have since kept this useful body in being. It represents all groups interested in the welfare of the blind, including representatives of local authorities and of the blind themselves, and for many years it has had the advantage of the sympathetic leadership of Lord Blanesburgh. Under the act of 1920 provision was made for grants from Government funds, and the old-age pension was given to blind people at 50 instead of the normal 70 years. At the same time local authorities were made responsible for the welfare of blind persons in their areas, with wide powers. Fortunately many local authorities found already existing in their districts voluntary associations who had wide experience of this work. Even so, the new duties were not simple and in 1927 the advisory committee issued a practical handbook to be a guide in their application. The third edition, now published,[1] has been rendered necessary by the passing of the Blind Persons Act, 1938. Three important changes are the lowering of the pension age from 50 to 40 years, more generous consideration of the means of blind persons for the purposes of grants, and the complete divorce from the poor law of assistance to blind persons other than medical assistance or assistance in an institution. The advisory committee deal broadly with their subject, covering the definition and incidence of blindness, the development of services, classification and its limitations, the trainable blind, and the unemployable blind (some 80 per cent. of the total), social needs, organisation, and the prevention of blindness. Of all these, perhaps the last is the most important. The handbook brings out the steady reduction that has taken place in blindness due to ophthalmia neonatorum. In 1936 there were in England and Wales only 10 blind children under one year of age and 196 between one and five years, of the total of 67,534 blind persons, many of whom, however, owed their blindness to this cause. But there are other known causes of blindness for which comparatively little is still done —for example, progressive myopia. For many years a committee of the Union of Counties Associations for the Blind have been collecting detailed information as to measures of prevention, and it is satisfactory that their useful work will not come to an end with the disappearance of the Union of Counties Associations, for the Minister of Health has appointed a standing committee to carry it on, under the chair-

1. Handbook on the Welfare of the Blind. 3rd ed. London H.M. Stationery Office. Pp. 54. 1s.

manship of Mr. P. M. Evans who was chairman of the union's committee. The object of every worker, says the handbook, is to help the blind to lead a normal life, to recognise their limitations in a natural way, as a lame man recognises that he cannot run a race, to help them to mix with other blind people, but also with the sighted; to teach them to train themselves to do well the many things the blind are able to do well; and above all to help them not to think of themselves as "blind in a blind world."

ANGINA PECTORIS AND XANTHOMATOSIS

INVESTIGATIONS by Harbitz into the deposition of xanthomatous substances in the body have inspired a Norwegian physician, Carl Müller,[1] to make further inquiries. Having once begun to associate xanthomatosis (in the form of xanthelasma of the skin and xanthoma tuberosum) with angina pectoris, he was soon impressed by the familial character of this association; indeed including his first case of xanthoma tuberosum and angina pectoris observed in April, 1937, he has collected 79 cases of xanthomatosis, distributed over 17 families, in 69 of which there were signs of heart disease and in 59 angina pectoris. Most of his patients were employed in business or professions, and there was not a single representative of the "working classes," although much of Müller's practice is among them. The association of the two conditions is explained by saying that xanthomatous deposits are laid down in the coronary arteries and give rise to ischæmia of the myocardium with resultant attacks of angina pectoris. In 5 of Müller's cases the deposits were held responsible for valvular disease of the heart, but patients may also show xanthomatosis without signs of heart disease. The two conditions may, he says, be found together at almost any age.

THE INSANITY DEFENCE

THE ordinary rules of procedure in criminal as well as in civil trials lay down that the evidence for the Crown or the plaintiff shall be heard first, and then the evidence for the defence. Exceptions are made where the judge considers them necessary, but that is the ordinary practice. Dr. L. A. Weatherly, that veteran and never-ageing expert in forensic psychiatry, urged before the Medico-Legal Society on May 25 that a rule of procedure should be introduced laying down that, when insanity is pleaded as a defence to a criminal charge, the expert evidence called by the Crown to rebut that defence should be heard after the expert witnesses for the prisoner have spoken. Such a rule might be made by decision of the Court of Criminal Appeal, by the rule committee of the Supreme Court, or, of course, by Parliament. In support of his argument he recounted—without a single note—five cases in which he had been concerned at various times during this century. In four of them the procedure he proposed had been followed by direction of the judge. In two of them the Crown experts had refused to go into the box, so clearly was the defence of insanity made out; and in two others they agreed with the defence. In the fifth case the judge insisted on hearing the rebutting evidence first. The Crown expert said he could find no trace of insanity in the prisoner, and Dr. Weatherly, who followed for the defence, was laughed out of court. The prisoner was sentenced to death, but was reprieved and four days later was sent to Broadmoor, hopelessly insane. Shortly afterwards the judge's own brother, a doctor, became suddenly insane and died in an asylum. The judge sent for Dr. Weatherly and confessed that the insanity defence had always been to him like a red rag to a bull, but he now realised that he had sentenced many insane persons to death, and had been quite wrong in that particular case in allowing the medical witness for the Crown to go into the box before the evidence for the insanity defence had been heard. Dr. Weatherly's point is that this arrangement should not be left to the discretion of the judge; and arising from that point he made another—namely, that the Medico-Legal Society should appoint a standing committee on legislation, to investigate cases in which it appears to them that the law should be altered or amplified, and to promote the necessary legislation. This certainly seems a possible function of a body which exists to reconcile the differences between law and medicine. Whether Dr. Weatherly's example is a fitting one for the attention of such a committee is, as he recognised, debatable; for, as Judge W. G. Earengey pointed out in the discussion, the rule he proposes has been very generally adopted. There is, however, scope for a considerable variety of medicolegal legislation. The society could render valuable assistance, for example, in such matters as the use and regulation of blood-tests in bastardy cases, the treatment of delinquency, and the reform of workmen's compensation.

1. *Nord. Med.* April 22, 1939, p. 1183.

TUBERCULIN TESTS IN CATTLE

WHILE the tuberculin test in man and in cattle has a fundamental similarity in indicating sensitisation due to tuberculous infection, there are important differences between the two species both in the sphere of usefulness of the test and in the technique of its application. In man the chief use of tuberculin testing lies in the negative reaction: to exclude tuberculous disease in clinically suspect cases, and to identify young adults who are in contact with the disease but have still to acquire a sensitising first-infection (e.g., nurses and medical students). The positive reaction—except in infants and in adults known recently to have been negative—is of minor use, since it cannot satisfactorily distinguish tuberculous infection which is progressive from that which is quiescent or healed. In cattle, on the other hand, infection and disease are more nearly synonymous, all naturally acquired tuberculous lesions being regarded as a potential source of danger whether accompanied by clinical evidence or not. Since the test in cattle can be made sufficiently sensitive for the positive reaction to detect, and the negative to exclude, tuberculous lesions with considerable accuracy, the two reactions are of equal value and the test has rightly become the sheet anchor in the eradication of bovine tuberculosis from herds.

On the technical side the chief differences between herd and human testing are due to the much lower sensitivity of cattle. Although—as for man—the intracutaneous technique is the one generally employed in this country, a double test is widely used to enhance the reaction, the tuberculin being injected in undiluted form—a procedure that might produce severe local necrosis and a febrile response in a highly allergic human being. While this method on the whole gives satisfactory results in the field, a number of difficulties and discrepancies are associated with it. Among them may be mentioned the confusing non-specific reactions that are sometimes produced in the skin of normal animals with certain types of tuberculin, the desensitisation that may occur around

the site of an injection and possibly mislead when routine tests at short intervals are practised, and the alleged "doping" of tuberculous animals by a previous injection of tuberculin in order to render a test negative. These and other anomalies have been investigated by Prof. J. B. Buxton, F.R.C.V.S., and Mr. R. E. Glover, F.R.C.V.S., under the auspices of the joint tuberculosis committee of the Medical Research Council and Agricultural Research Council, with the result that the position has been clarified.[1] The investigators decide in favour of an ammonium-sulphate precipitated synthetic medium tuberculin as providing a balance between adequate potency on the one hand and a minimum of anomalous reactions on the other, a view which is admittedly based upon comparative testing rather than on extensive post-mortem evidence. They find, furthermore, that interference of one test with the next by local desensitisation of the skin can be avoided if due care is taken to choose sites sufficiently distant from one another, and they show also that it is very difficult to mask a reaction to the double intracutaneous test by any form of doping.

This clarification is all to the good. What is now required is a general agreement upon the preparation and type of tuberculin for use in cattle, and upon the best method for standardising its potency. Besides the more usual synthetic medium tuberculins there are purified derivatives such as P.P.D., now familiar to those engaged in human testing, and knowledge of their value in veterinary work would be welcome. The lack of additional knowledge need not, however, hold up the advance of herd-testing, for in its absence it has been possible to reduce bovine tuberculosis in certain areas of the United States to small proportions.

MARVELS AT THE ROYAL SOCIETY

EVERY year the Royal Society stages an exhibition of wonders for the guests at its conversazione, and in the afternoon the exhibitors try to make clear the obscurities of their work to representatives of the press. This year the exhibition, held on May 24, had to face not only the local competition of the Royal Academy but the more remote counter-attractions of a fine-weather Derby. It was therefore fitting that the visitor should be greeted on arrival by good news—namely, that the bedbug, which has given as many sleepless nights to local authorities as to tenement-dwellers, is being simply and safely eradicated in Liverpool and elsewhere by a modification of the method described in THE LANCET two years ago (1937, **1**, 530), using heavy naphtha. Mr. S. A. Ashmore, Mr. J. Macmillan and Mr. A. W. McKenny Hughes had borrowed a model gas-proof room from the A.R.P. authorities for their demonstration. The naphtha is sprayed on light cotton screens hung on batons some 3 in. from the walls, and the resulting vapour is said to be lethal to the bedbug in 18–24 hours but harmless to man. Nearby the amplified drone of a fly's wings could be heard varying with the changes that Mr. Gottfried Fraenkel and Mr. R. A. Davis made in its atmospheric pressure. Upstairs even the non-technical visitor could appreciate Capt. Guy Dollman's complete set of armadillos; the early daguerrotypes and talbotypes shown by Mr. George Gabb to celebrate the centenary of photography; the General Electric Company's field emission electron microscope, in which the electrons shot off from a fine metal point at the centre of an evacuated bulb form a highly magnified and characteristic pattern on the fluorescent walls of the bulb; the trade-secrets of ancient Peruvian potters as exposed radiographically by Mr. H. J. Plenderleith and Mr. A. Digby; and the National Physical Laboratory's meteorological balloon which sends out a continuous record of temperature and pressure on its short-wave wireless transmitter. The exhibit of the biophysics laboratory of University College, London, came nearer the medical field. Here an electrical stimulus was applied at one end of a piece of frog's nerve and the response was picked up at the other and shown as waves on a cathode-ray oscillograph; the rate of transmission of the impulse—and, when two stimuli were applied, the refractory period—were demonstrated clearly as distances on the screen. Dr. Adolf Schott showed an electrical ergograph he had designed for use with the gaseous exchange apparatus he exhibited last year. The subject drives the rotor of a motor generator by hand, and the electrical equivalent of the work done is shown directly on a wattmeter. This should be helpful in determining exercise-tolerance both in health and disease.

WOOD AND BONES

ORTHOPÆDIC surgery is akin to carpentry: both crafts share many of the same tools and they differ mainly in the materials they use. Or rather one should perhaps say that they used to differ, for there is a recent report from Rumania of the introduction of wood into orthopædic surgery. Theodorescu[1] came upon the idea by chance. He was consulted by a patient who complained that for several months she had had a painful lump in her leg at the site of an old injury. When this was incised a splinter of wood more than three inches long was found buried deep in the leg: it had been there nearly five years without causing symptoms, and there was hardly any reaction in the surrounding tissues, which seemed to have treated it with a "tolerance almost amounting to indifference." Theodorescu decided to utilise this property of wood in the internal splinting of broken bones. After experimenting on dogs he applied the method in six human patients with fractures, and was successful in all of them. In most of the cases he fashioned a batten of wood which he used as an intramedullary peg. He deliberately used a peg of oblong cross-section so as not to block the marrow cavity. Before operation the wood (preferably oak or acacia) is roughly shaped, and sterilised in an autoclave, which allows it to retain its valuable property of absorbing moisture from the tissues in which it is placed, thus causing it to expand slightly and so to fit more tightly in the bone; boiled wood loses this property. So far from having trouble with infection, Theodorescu believes that the natural juices of the wood are actually antiseptic, an opinion based on his observations in a case of compound fracture.

Two almost identical cases of fracture of both bones of the forearm provided an excellent opportunity for controlled experiment: in the first case the radius was mended with wood and the ulna without internal splinting, while in the second case the converse was done, and in neither did the foreign substance modify in any way the formation of new bone. But if Theodorescu shows a pretty appreciation of the value of controlled experiment, he does not appear to give due weight to the importance of time. When he wrote his report only two months had elapsed since the

1. Tuberculin Tests in Cattle, *Spec. Rep. ser. agric. Res. Coun., Lond.* No. 4. H.M. Stationery Office. 1s. 6d.

1. Theodorescu, M., *Revista de Chirurgie* (Bucharest) 1938, **41**, 835.

operation on his most recent case, and his first case had been done only six months earlier. His last note on the case with a compound fracture states that "35 days after operation the skin wound is almost completely healed." If the lady with the splinter in her leg began to have trouble from it after nearly five years, is it safe to say after only eight months that these fracture cases with big splinters buried in their bones are yet, so to speak, out of the wood? Time will show.

THE AMERICAN SUBMARINE DISASTER

ON May 23 the U.S. submarine *Squalus* sank in 240 ft. of water off the coast of New Hampshire with about 60 men on board. Three methods were available for saving the lives of the crew. The captain suggested an attempt to blow out the water with compressed air and so to raise the submarine to the surface; but this suggestion was vetoed for technical reasons by the naval experts. The ship was equipped with the "Monsen escape lung," which is similar in principle to the Davis escape apparatus used in British submarines. This was regarded as a last resort, however, either because of the partial flooding of the ship, or because of the danger of using it at so great a depth. It may be of interest to discuss the latter danger.

One of the most serious risks that deep-sea divers face is the accident known as "squeeze." As we recently pointed out,[1] a descent of only two feet increases the total pressure on the diver's body by about a ton. The diver is normally encased in an incompressible helmet and a compressible suit. Compressed air within this suit keeps the pressure within equal to the pressure without. If this increased pressure fails, air is squeezed from the compressible suit into the incompressible helmet and in extreme cases the man himself may be moulded into his own head-piece. This happens, however, because of the incompressibility of the helmet. Native divers, using no diving suit, are said to have descended to immense depths without harm. Indeed it is difficult to see why any harm should be done directly by water pressure. The tissues of the body, with the exception of the bones, behave in this respect as liquids; and pressure, as Haldane has shown[2] is transmitted instantly, equally, and undiminished in all directions through liquids. The body is therefore no more likely to be squashed than is a volume of water. Moreover it should be remembered that the internal pressure of water has been calculated as being thousands of atmospheres, and it is therefore unlikely that tissues composed largely of water would be seriously inconvenienced by being subjected to some seven additional atmospheres. Since the time of Paul Bert[3] it has been realised that the dangers to which divers are subjected, apart from "squeeze" and minor inconveniences due to closed eustachian tubes, are the results of respiratory disorder and not of mechanical pressure. If the oxygen pressure in the respired air were continuously adjusted a human being could undergo with impunity immense changes in the external fluid pressure. On this fact the efficiency of the Davis apparatus partly depends. The apparatus has only been tested once on a large scale, in the wreck of the British submarine *Poseidon*. It then worked exactly according to plan, the only fatality being due not to any fault in the apparatus but to the failure of its wearer to breathe freely during his ascent.

1. *Lancet*, Feb. 18, 1939, p. 400.
2. Haldane, J. S., Respiration, London, 1935, p. 331.
3. Bert, P., La Pression barométrique, Paris, 1878.

The third method available to the imprisoned crew of the *Squalus* was the one adopted—the use of a diving bell of new design. This is a cylinder enclosed in a bell. In the bell is a diver whose duty it is to fix the rubber rim of the inner cylinder over the hatch of the submarine, with which it makes an airtight joint. Within the cylinder are two compartments, one above the other. The upper one, which has hitherto been closed, contains air, the lower one water. After union has been made with the submarine, the water is expelled from the lower chamber, the hatches are opened and the men climb through into the upper chamber. Both hatches are then closed and the bell is hauled to the surface. Except for a temporary hitch on its third journey, the bell worked well. Its advantage appears to be that nine men can be carried at once, but it has several disadvantages. The exact scene of the disaster must be known, the bell must be brought to the spot, and proper connexion made to the submarine—a task which cannot always be easy. It is hardly likely that any such device can replace the individual escape apparatus of Sir Robert Davis, which is always at hand and needs no assistance from without in bringing the men to the surface.

TECHNICAL REQUIREMENTS OF PASTEURISATION

WHEN the rules are closely followed pasteurisation destroys tubercle bacilli and other pathogenic organisms which may be present in raw milk, while it does not modify its nutritive qualities in any material way. This dictum is based on so large a body of scientific experiment as to be accepted by all unbiased observers. The need for pasteurisation is equally admitted by experts and discussion now centres round the technical problem of the best method for its performance and for ensuring its success. At present the only method officially recognised is what is called the "holder" process in which the milk is raised to a temperature not below 145° F. and not above 150° and held there for not less than 30 minutes. This method is efficient and gives a considerable margin of safety; much of the milk consumed in this country is so treated. As a technical process and from the trade standpoint it has certain drawbacks, such as the cost of installation (for the larger plants), the space occupied in the dairy, and in particular the outlay of time. From the strictly trade aspect therefore it is always kept in mind that the official holder process is not of necessity the last word and that other methods of pasteurisation may be devised which are equally safe and reliable. Indeed on the Continent methods involving different time and temperature factors are extensively used and accepted as satisfactory. Taking as the yardstick of efficiency the tubercle bacillus, the most resistant organism likely to be present, we must remember that its destruction by heat is a factor of time *and* temperature: the higher the temperature the shorter is the period of exposure to ensure destruction. Theoretically higher temperatures for shorter periods are equally efficient, the chief drawback of the shorter exposure being the difficulty of effective control. This question of efficiency and adequate control for shorter exposures is now being tested in a number of laboratories. A recent paper[1] by Mattick and Hiscox from the National Institute for Research in Dairying, University of Reading, brings out well some of the essential points. Their experiments, made with

1. Mattick, A. T. R., and Hiscox, E. R., *Med. Offr*, May 6, 1939, p. 177.

several plants under commercial conditions, show that 162° F. for 15 seconds is efficient as judged by the destruction of tubercle bacilli, offers a good margin of safety and does not damage the cream line (a point of interest to the trade). The phosphatase test, which has proved reliable for the control of pasteurisation with the holder method as officially defined, appears to be equally efficient when pasteurisation is carried out for a shorter time at a higher temperature. It is satisfactory to learn that this valuable test is available for the whole of the time-temperature range. The authors agree that high-temperature short-time pasteurisation requires rather more control than does the official requirement but they consider that effective control is possible. They do not go further now than to suggest that there is a case for considering the shortened process as an alternative to the holder process, but they do advocate that it should be permitted now for the pasteurisation of by-products —skim milk, whey, &c.—as required under the Tuberculosis (Affected Herds) Scheme, 1938. While at present there may be insufficient data available to justify any modification of official practice for milk intended for human consumption, it is proper that other methods should be submitted to detailed scientific study in the hope that a process may be found that is not only safe but convenient for the trade and easy to control effectively.

ASPIRIN AS A POISON

PERHAPS no drug is so well known to the public as aspirin, for it is advertised everywhere and under many names as a panacea for many ills. Its vehicle is often the hospitality which provides it for the friend's headache, in the spirit that "even if it doesn't do you any good, it can't do you any harm." It is only occasionally that we have a reminder that aspirin, acetylsalicylic acid, is a remedy that can be abused to the danger-point or even employed for self-destruction. In 1935 Dyke [1] recorded a case in which some 435 grains gave rise to toxæmia involving the hepatic, renal and nervous systems; recovery followed repeated lumbar punctures, a procedure which has been found useful in barbiturate poisoning. Several suicides by means of aspirin have lately been mentioned in the press, and in a case coming before the coroner at Epsom, Dr. Eric Gardner, in reporting the recovery of 60 grains from the body, said that this amount might well be fatal. The lethal dose varies widely from person to person, and though aspirin is astonishingly safe compared with most other effective drugs there is certainly room for greater discretion in the use of one that is so often taken in substantial quantities without good reason.

ANÆSTHETICS IN WAR-TIME

IN deciding in advance what would be the anæsthetic methods of choice in another war we can fortunately draw on a good deal of experience from the last. We have learned, for example, the danger of spinal analgesia in patients who are already shocked, and the advantages of non-toxic inhaled anæsthetics. There are now, however, agents at our disposal which were not available in 1918, and the use that can be made of them was well outlined at the International Congress of Military Medicine at Washington a week or two ago. The methods of anæsthesia for war surgery must naturally vary according to whether the medico-military establishment is in the forward or the rear zone. Far enough in the rear the principles established for civil surgery can be followed. In the forward zones it is a different matter. Here no major surgery is carried out, yet there is ample need for anæsthesia for those who have to be made fit to go safely on towards the base. The anæsthesia needed is usually brief, and the means for procuring it must be simple and portable. Gas machines, for example, have no place in this type of surgery, whereas the rapidly acting barbiturates given by intravenous injection might well be of the highest service. Though some authorities think that any anæsthetic beyond ether and perhaps nitrous oxide is a refinement unsuitable for war-time conditions, others believe that such agents as hypodermic injections of morphia are also often needed. Sodium amytal can be used with great benefit to patients seriously wounded who have to undergo further transport, and patients so treated are more likely to survive exposure and delay. As far as the doctor's convenience goes, the apparatus required for intravenous anæsthesia can be carried in a small case strapped on the back.[1]

1. Dyke, S. C., *Lancet*, 1935, **2**, 613.

STUDENTS AND MILITARY SERVICE

THE Government has recognised that calling-up for military training of men between the ages of 20 and 21 years would prejudice the future prospects of students more severely than those of other men. At the end of last week the Minister of Labour announced that undergraduates now at universities or university colleges will be allowed to postpone their training until the end of their approved course of studies. When he registers next Saturday the student will apply for a form to be filled in with a certified statement that he is a full-time member of a university, giving the date at which his course is due to terminate. The same applies also to students who are entering next October. It is understood that these arrangements will also apply to medical and dental students, whether or not they are members of universities, and it may be presumed that in their case the approved course of study terminates when they qualify. What form of military training will then be required has not yet been announced. One of the few subjects on which medical educationists agree is that anatomical and physiological studies must somehow be brought into far closer relation with clinical work; and a six months' holiday on military service between the laboratory and hospital stages of the curriculum would clearly have been an educational disaster. From the narrower angle of national service it is hard to see how six months' postponement of qualification could have been justified on the ground of national emergency; for in any really acute emergency these students would have been prevented from leaving their medical schools till they had qualified. The time for military training is immediately after qualification and not before.

Dr. T. R. FORSYTHE, deputy medical superintendent of the Kent County Mental Hospital, Maidstone, has been appointed a commissioner of the Board of Control, in succession to Dr. A. E. Evans, who has been appointed a Chancery visitor.

On June 13 at 3 P.M., at the London School of Hygiene, Sir EDWARD MELLANBY, F.R.S., will deliver the Stephen Paget lecture at the annual general meeting of the Research Defence Society. He will speak on the experimental method in the conquest of disease.

1. Jarman, R., *Lancet*, April 8, 1939, p. 845.

SPECIAL ARTICLES

THE BIRTH-RATE AND PRESENT-DAY DIFFICULTIES *

BY VISCOUNT DAWSON OF PENN, F.R.C.P.

I MAY plead a certain justification for speaking at Welwyn Garden City; firstly because I have been for many years interested, perhaps even concerned, in the problem we are discussing, and secondly because your distinguished founder consulted me, during your prenatal existence about the year 1920–21, on the best lay-out for the provision of health and education in a new community having regard to the trends of progress rather than the forms of established custom. Beyond the pleasure it is to me to visit you in your young and vigorous maturity, this is a good platform on which to discuss certain problems of population which unless they are boldly faced may place our country in jeopardy.

REPRODUCTION-RATES

To come to close quarters with my subject, let me invite your attention to two charts for which I am indebted to Mr. D. V. Glass of the London School of Economics. The gross reproduction-rate is the average number of girl babies—potential mothers—born to a woman throughout childbearing age. If we allow for some of these girls not surviving throughout childbearing age, we have the net reproduction-rate. The net reproduction-rate reached its peak in 1881—viz., 1·5—that is, 100 women produced during childbearing age 150 future mothers. Thenceforward the net reproduction-rate fell; at the commencement of this century it was 1·25, by 1925 it was below unity; by 1933 it had fallen to 0·76—in other words, 100 mothers were only producing 76 future mothers—a grave decline; replenishment of the nation was failing. Many would reply: "Our population is still increasing in numbers." But what is the *quality* of that population? Examination of chart II will tell us. Records to the left of the perpendicular line are actual, those to the right of that line are what the records will be in the future if the present trend continues. In 1880 those under twenty were 46 per cent. of the population; whereas those over sixty were 7·5 per cent. of the population; note how continuously the younger people have diminished and the older increased; note how dangerously the curves of the young and old are approaching each other. Thus the proportion of youth to age was, in 1880, 6 to 1 (and no doubt both the birth-rate and death-rate were then too high); in 1931 the proportion was 3 to 1, whereas in 1940 it will only be 2 to 1, and with continuation of the present trend youth and age will by 1962 have reached equality of numbers; not enough new lives to reinvigorate the nation—not enough steam to make the wheels of community-life go round. Given existing trends, what a prospect—vigour, adventure, love and laughter beginning to fade!

This thing has not happened, but it threatens; the decline of the school population is a portent. Here is a strong call to intelligent anticipation. To remedy it does not mean return to the high fertility of Victorian days; such would neither be possible nor desirable, for be it remembered that the high birth-rate of that wonderful age was only rendered possible by the coexistence of a high infant death-rate, which we pride ourselves on having reduced from 160 to 53 per 1000. No; a moderate increase of births would serve the purpose provided at the same time we plan for *quality* of race. But quality requires an adequate turnover.

The net reproduction-rate should be above 1—indicating that 100 mothers should produce rather more than 100 future mothers—that is, replace themselves and a bit over. Then we men must not be allowed to perish; and there are the unavoidably childless marriages, the women who do not marry, the parents with only one child—"single child sterility." Making these allowances I put it forward that a family of four, wisely spaced, is a good family, that wherever possible no family should be less than three.

This statement is based on the interests of racial survival and strength. But surely it is equally sound from the point of view of the family. The completion of the maternal cycle at suitable intervals, conception, gestation, parturition, lactation and the activities of the glands which control them, make for preservation of beauty of body and mind. Children make the home, and keep their parents young, while educating each other. On the other hand the woman who intentionally ends her maternity with one child is contracting, to her hurt, the kingdom her body and mind were meant to possess, and often learns her mistake too late. Moreover the home of the only child is only too apt to be clouded with anxieties over health and is little suited to successful upbringing.

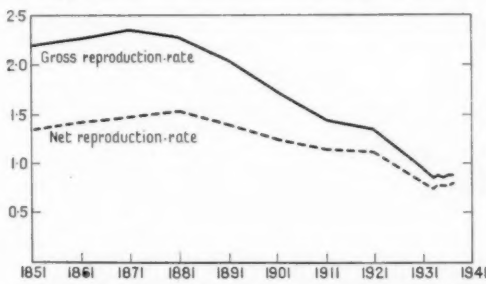


FIG. 1—Reproduction-rates for England and Wales (1851–1937). The upper curve shows the average number of girl babies, and the lower curve the average number of future mothers, born to each woman during her child-bearing life.

BIRTH-CONTROL

Next to consider the causes of declining reproduction. The dominant cause is birth-control. I suggest to you that no thinking person would wish to return to the conditions of the last century even if it were possible to do so. No doubt large families served well that day and generation, but their proportion of 6 to 1 as between under twenty and over sixty was too high and was obtained by the operation of high death-rates. Indeed their uncontrol of the birth-rate was only possible with a high infant death-rate, which was then about 160 per 1000, as against 53 last year. Once the fall of the infant death-rate became progressive, the fall of the birth-rate had to follow. It is one thing to have, say, 9 births and of these 4 deaths (that is, 5 children to rear) and another to have 9 births and 1 death (that is, 8 children to rear).

* An address delivered at Welwyn Garden City on May 23.

It is here useful to reflect that birth-control came into being as the result of social forces, not of evil intentions. It got a strong hold in Catholic France as far back as 1840 owing to the operation of laws of inheritance. Birth-control exists in all civilised countries and is necessary and inevitable. The mistake of today is its extension towards the point of suppression—a mistake which operates not only against the interests of the race but in the long view against the happiness of the individual. In the first few years of married life the childless couple may have a good time, but thereafter there lies before them a vista of increasing unfulfilment.

It is however well to point out that there is a group—how large we do not know—of childless marriages due to failure of fecundity, in one or both partners. Failure to conceive should never be allowed to extend beyond a year without resort by both parties to medical advice, for the science of reproduction is extending its boundaries.

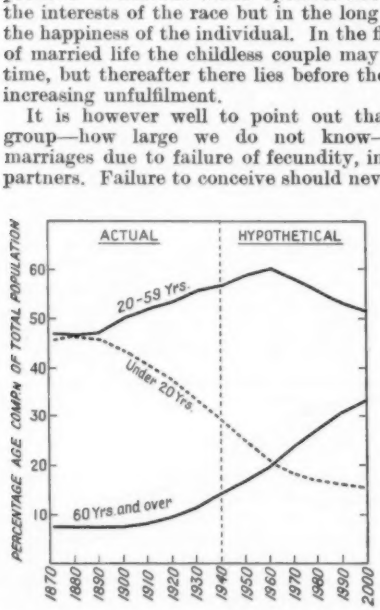


FIG. 2—Age-composition of the population of England and Wales, assuming that fertility falls until 1960 and mortality until 1970, giving a net reproduction-rate of 0·566 from 1970 onwards.

The fact however remains that the dominating cause of this population shrinkage is due to birth-control. People think that because the population is still increasing all is well—forgetting to ask, "populated with what?" If once they realise that a population depends on its quality and worth, that if a nation is to live and be strong it must go on being born again by the steady reinforcement of new lives, they will see the necessity of adequate parenthood; and should they fail to contribute their share, the ageing part of the population will increase, pensioners will overtake producers, and the last state of unemployment will be worse than the first.

QUALITY OF THE CITIZEN

Side by side with adequate though controlled parenthood there must be a planning for high quality in the rearing of offspring, for Britain requires, even more than heretofore, capacity and fibre in its oncoming people. It is abundantly clear that the cost of rearmament will require a contracture of expenditure on projects of social betterment. Would it not be wise to consider here and now what purposes should have priority of claim on the public purse? Surely a leading purpose is the building up of the best individual citizens and enough of them; for without this all else will be naught.

And so to my next submission that reproduction is no longer the exclusive responsibility of parents but one in which the state has a share. England's polity has long been evolving on these lines—maternity services, free education, school meals—why not a more complete comprehension?

Prof. A. W. Carr-Saunders has stated the case with clarity and force. Before birth-control "children were a forced levy," an inevitable accompaniment of fertile partnership; but with birth-control the community relies for its revenue of children on voluntary contributions. Should otherwise willing parents be penalised by financial struggle? Should not the state assist those of limited means who play their part in this essential service, by contributing to the attainment of effective nurture? On the ways and means of securing these vital purposes committees are making inquiry under the leadership of Prof. Carr-Saunders and what follows are but suggestions.

Grants might take the form of weekly allowances (in money or, perhaps better, tickets) progressing with each child up to a certain maximum in order to help maintenance, and above all the securing of good feeding. Beyond this, housing accommodation suitable for young families, with easy access to the outer air and to nurseries and creches, should be available and at a rent within the means of the parents. Such measures would link up with the various schemes for physical education and recreation, playing-fields, camps, scouts and guides which are gathering together their efforts to secure national fitness and welfare.

And the reward would be citizens vigorous and happy and worthy to inherit this great country.

BARBITURATES BY POST

ON May 25, at the instance of the Pharmaceutical Society of Ireland, the firm of J. Redfern Ltd. was prosecuted and fined £2 in the Dublin district court for selling phenobarbitone, included in a preparation called Renesol, in a container not distinctly labelled with the name of the drug. It was alleged that the defendants, a limited company registered in England with a nominal capital of £100, used its Dublin offices for sending to England by post as a cure for epilepsy this drug, the sale of which without a medical prescription is illegal in England. Since the sale of barbiturates is not restricted in Eire to doctors' prescriptions, the Eire authorities cannot stop the practice of sending these drugs by post to England; they can only take steps to enforce the proper labelling of the drugs. Evidence was given that only 3 per cent. of the business was done with customers in Ireland, most of it being done with customers in England; that the sheet of instructions sent out with the drug said that the capsules contained no habit-forming drug; and that some of the accompanying printed matter prescribed three capsules a day, whereas the officially recommended maximum was the amount contained in two capsules. Unless a means is found of putting a stop to this practice, there is danger that it will become extensive, and that Eire will be used as a base of operations by suppliers of banned drugs to addicts in Great Britain.

TRANSFUSION OF STORED BLOOD.—The health commissariat of the U.S.S.R. announces a competition for an apparatus for storing and transfusing blood; it must hold 500 c.cm., its construction must be simple, and it must be strong and easily transported, and allow of rapid heating. The competition is open until Nov. 1, 1939, and Prof. S. I. Spasokukotsky will preside over the committee of award.

GENERAL MEDICAL COUNCIL

SUMMER SESSION, MAY 23–26, 1939

(*Concluded from p. 1229*)

Penal Cases reported by the Dental Board

THE council ordered the erasure from the Dentists Register of the names of John Forbes McDonald Connar, registered as of 33, Templemore Avenue, Belfast, "Dentists Act, 1921," and Arthur Groom, registered as of 83, Antrim Road, Belfast, "Dentists Act, 1921." The board had found that Groom, although he had been declared by the Ministry of Labour for Northern Ireland as unsuitable for service in connexion with dental benefit, had done work on insured patients and that Connar had signed certificates and drawn money as though he himself had done the work.

RESTORATIONS TO DENTISTS REGISTER

After deliberation in camera the President announced that the names of Thomas Gordon and Albert Charles Hellyer Taylor had been restored to the register.

Charges against Medical Practitioners

DRUNKENNESS AND MOTORING OFFENCES

A number of practitioners appeared before the council in consequence of conviction for offences involving drunkenness. In five of these cases judgment had been postponed from previous sessions; the council heard the evidence which the practitioners brought that their conduct had been satisfactory in the interval, and their assurances for the future, and decided not to order their names to be erased from the register. In the remainder of the cases the council postponed judgment until the next summer session.

UNLAWFUL IMPRISONMENT OF A MENTAL PATIENT

Abramo Litvak, registered as of Yonah Hanavi Street, 13, Tel-Aviv, Palestine, M.D. U. Bologna, 1918, appeared before the council on a charge of having between March and July, 1935, without authority detained a girl named Haya Ida Rubin in a locked room and a locked chicken-house, and provided those places to conceal her, for which he was sentenced by the district court of Jaffa to twelve months' imprisonment, which was reduced on appeal to the supreme court of Palestine to six months' imprisonment. It was further alleged in the charge that Haya Ida Rubin was a person of unsound mind and a patient of respondent. He was accompanied by Mr. Neil Lawson, counsel, instructed by Messrs. G. Mervyn Heap and Co., solicitors.

Mr. Stephen S. Howard, counsel, instructed by Messrs. Waterhouse and Co., solicitors, laid the facts before the council. He said that Dr. Litvak had practised in Tel-Aviv as a specialist in nerve complaints, and had been consulted by a Mrs. Goldberg about the girl Haya Rubin, whose parents had recently died and left her about £1200. He had taken the girl as a patient into a place he had called his clinic, on the ground floor of a building of which the middle floor contained living rooms and the top floor a pension kept by his wife. She lived in the pension, and Mrs. Goldberg paid £1 a day on her behalf, which had been reduced to £18 a month. Mrs. Goldberg had been prevented from seeing the girl, who had been taken to an orange grove at Raanana, about an hour away, and locked up in a shed with an iron roof and a concrete floor containing a filthy iron bed and no sanitary or washing facilities. The only person in charge of her had been an old man of eighty, Dr. Litvak's wife's father, but on one occasion Dr. Litvak had taken food to her himself. Evidence had been given in Palestine that a man had paid £300 to Miss Rubin in August, 1933, and that she had immediately handed the money over to the respondent, who had been present at the time.

Dr. Litvak, in evidence, said he had practised as a specialist in mental diseases in Palestine since 1929. He had been consulted in the case of Haya Rubin, who had been suffering either from dementia præcox or from functional disorder. He had decided to remove her from her relatives and keep her under observation. After a time she had recovered sufficiently to live in his wife's boarding-house, and he did not then treat her any more. He had nothing to do with the boarding-house, and knew nothing about the financial arrangements made between Mrs. Goldberg and his wife. The girl had refused to go back to her relatives. Proceedings taken by Mrs. Goldberg to have the girl declared insane had failed. In 1935 his wife had sold the boarding-house, and he and his wife had purchased an orange-grove with a house at Raanana, about an hour from Tel-Aviv. He had been very busy with his practice and had only paid occasional visits to look at the orange-grove, staying perhaps a quarter of an hour. He had seen the girl in the garden on two or three of those occasions, and she had passed the time of day with him. She had never complained of not being well. He had never seen her in the chicken-house. Until the police investigation, he had never known that she had been shut up in the chicken-house. The superintendent of the Bethlehem Mental Hospital had found her insane, and she had been so pronounced by the court a year before the prosecution.

Cross-examined, Dr. Litvak agreed that originally he had arranged terms with Mrs. Goldberg—£1 per day—for Miss Rubin. Later, when she had recovered, this had been reduced, the arrangement being made between Miss Rubin and Mrs. Litvak; he did not know that she paid £18 a month until early in 1935. He had not been present, or in Tel-Aviv at all, when £300 had been handed to Miss Rubin. There was a credit entry of £300 in his bank account for 1933, but that sum did not come from Miss Rubin but from a sale in Tel-Aviv. He had never seen the chicken coop before the proceedings began in January, 1937. He had bought the grove in March, 1935, and visited it many times; it was 45 square kilometres in extent. The chicken coop was 70–75 metres from the house. He had known it was there but had never been inside it. Neither he nor his wife had looked after the grove: they left it to a manager, who had subsequently proved untrustworthy. His wife had looked after the house but had not concerned herself with the orangery. Until 1929 he had a licensed clinic, but after that he had no right to keep patients.

In reply to the Legal Assessor, he agreed that when Miss Rubin first came to the pension she was a patient, under observation. She had ceased to be a patient after two or three months, having become quite well. She had then become an ordinary inmate of the pension. She was a friend; at first she had paid, but afterwards not regularly. She had been pronounced insane sometime in 1936, but only when the police came.

In reply to members of the council, the respondent said that he had seen no signs of insanity in Miss Rubin all the time she was at the orangery. It was true

that his son had given evidence of seeing her tear her clothes and go about partially naked, but the boy had never told him this. His father-in-law had never told him that he had shut Miss Rubin up in the coop for short periods because she was going about undressed.

Mr. Lawson said that the court in Palestine had been concerned to administer a somewhat difficult clause in the old Turkish law, and this had in fact been the first case under this clause. That court had been influenced by a number of matters not affecting the General Medical Council.

After deliberation in camera, the President announced that the registrar had been directed to erase from the register the name of Abramo Litvak.

AN ADJOURNED HEARING

John Herbert Hannan, registered as of 62, Queen Anne Street, W.1, L.M.S.S.A. Lond., 1921; M.B., B.Chir. 1926, M.D. 1927, U. Camb., appeared before the council, accompanied by Mr. R. G. W. Ross, of Messrs. Kingsley Wood, Williams and Co., solicitors for the hearing of his case adjourned from May, 1938. The council had found proved against him charges of being associated with the proprietors of a commercial rheumatism clinic which advertised and canvassed for patients. Dr. Hannan produced evidence that he had at once severed all connexion with the clinic and taken up research work under ethical conditions. The council decided not to direct the erasure of his name.

THE HASTINGS CONGRESS

THE congress of the Royal Institute of Public Health and Hygiene was held at Hastings from May 23–27 under the presidency of Mr. WALTER ELLIOT, whose inaugural address was briefly reported in our last issue. The work of the congress was divided into five sections, dealing with state medicine; women and children; tuberculosis; rheumatism; and nutrition and physical training.

Nursing Services

In his presidential address to the section of state medicine Sir FRANCIS FREMANTLE surveyed the service aspect of nursing. He briefly reviewed the evolution of nursing from a religious sisterhood to a lay profession, with its great spurt under the inspiration of Florence Nightingale, to its culmination in the act of 1919. The number of nurses of all kinds now on the register is, he said, about 90,000, but there is an increasing and almost universal shortage. This is not due to a falling-off in entries, for twice as many nurses were admitted to the register in 1937 as in 1926, nor to a greater rate of wastage, but to increased demand. The main factors responsible are the recent increase of 1500 beds every year in voluntary hospitals alone; the transference of hospitals from the guardians to the county and borough councils; the increased demand for the hospital treatment of acute illness, for domiciliary nursing, both municipal and private, and for the nursing supervision of the complex modern methods of treatment; the reduction in nursing hours; and the needs of public-health nursing and health visiting. Thus, whereas to maintain the 9000 now sitting for the final examination every year requires 12,000 entrants for training; if these additional needs are to be met 8000 more entrants will be required. Little is to be gained by lowering the age for entering the wards. Only a fraction of those needed can be obtained from the 46,000 a year output of the secondary schools, and if more of the 280,000 girls leaving elementary schools each year are to be diverted from other ways of earning their living, conditions must be improved and the attractions of nursing brought home to them by well-directed publicity. Even so, Sir Francis thought there was little likelihood of the demand being met by the requisite increase in state-registered nurses; nor is this necessary. The fully trained nurse is too precious to be wasted on duties which can be done by competent unqualified women. Many sensible women of middle age could, with a modified course of training, perform useful services, for example, in chronic wards, mental hospitals or in simple private cases. The Minister of Health has called for 100,000 additional "nurses" for his 250,000 additional beds, but there is a danger that the public might be unable to distinguish such semi-trained women from qualified nurses. The Athlone committee have therefore suggested a separate roll of assistant nurses under the General Nursing Council. Such additions and the necessary improvements in conditions will involve the training schools and the voluntary and municipal hospitals in expenditure that they could not meet, and Government grants, with their consequent share of public control, are essential.

Sir Francis urged an even more radical review of the proper functions and use of nursing services. Sick-nursing and district-nursing have become two separate and independent callings; but they deal with the one patient, who comes out of the district, passes through the hospital and returns to the district again. He could not believe this dichotomy of the nursing profession to be justified either in theory or in practice, in the interest either of the patients or the nurses. In one suburban hospital, visited on behalf of the King Edward VII Hospital Fund, he found what seemed the ideal solution. The district nursing was amalgamated with the hospital work and carried out by the same nursing staff under the medical staff of the hospital. Nurses would undertake a turn of duty for so many months in the district and in the outpatient department, and then return to duty for so many months in the wards. Patients were thus caught in early stages of illness, generally treated by their own doctors, and only advised to come to hospital when necessary. Once in hospital they could be discharged all the earlier with continuity of treatment and satisfactory liaison with the general practitioners. The nurses profited in health and in the change of routine. But principally it gave them a wider sense of the origin and end of ill health; its prevention, its continuance or recurrence, and its cure. And the voluntary system was saved the tiresome and exhausting duplication and overlapping of appeals, flag-days, whist-drives, bazaars, organisation and waste by having one system of voluntary work in the area.

Otorrhœa in Children

Dr. PHYLLIS TOOKEY KERRIDGE, London, in opening the discussion said that there are about a third of a million school-children in England with defective hearing. Fortunately, 95 per cent. of these are so slightly affected that they suffer no educational handicap, but nearly 98 per cent. require medical attention over a long period. The problem of finding the 80 deaf children in every thousand has been simplified, at least in those over seven years of age, by the development of the gramophone audiometer. A suitably instructed nurse or welfare worker can

deal with 30 to 40 children at each test in about twenty minutes. Children under seven who cannot write can be examined by a modification of the gramophone audiometer test, but only 6 to 8 children can be dealt with at a time and the results are not very satisfactory. Testing each infant separately is the best method, but this occupies about fifteen minutes for each child. When the children with impaired hearing have been discovered, they should be medically examined by an aural specialist. A committee of the Board of Education have recommended that a scheme for the treatment of ear disease and deafness should be established as a branch of the school medical service.

Dr. Kerridge pointed out that chronic suppurative ear disease is commoner among the poorer classes. She tested the hearing of over 5000 school-children in different parts of the country and of different social circumstances and found that defective hearing was four times as common among public elementary-school children as among children at schools where fees were paid. Almost all the cases were due to middle-ear disease, and there was not a single case of chronic otorrhœa in the better-class group. Climate had little effect and there was no difference in the incidence at boarding- or day-schools of the same group. She thought that malnutrition was the important factor, deficiency of vitamins A and C and protein being perhaps most responsible, and that the incidence would diminish with improvement in social conditions.

About one child in every thousand is so severely deaf from infancy that it cannot hear speech. It is therefore dumb until trained by a teacher in a special school. Congenital ear defects are responsible for half of this group, but meningitis and early acute middle-ear disease account for a large number. Nowadays, congenital syphilis is the cause in only 1·5 per cent. of these cases. Early specialised education is the only hope for all these children. Dumbness is almost invariably due to deafness, and dumb children should be managed and educated on this assumption until another cause is proved. It has been found that only 3 per cent. of these children are completely deaf to magnified sounds. Moderately deaf children present a vast educational problem, for some need instruction in lip-reading, others require hearing-aids and yet others merely require a favourable seating position in the class-room. No special schools exist for them and the official ruling is that they should be sent to the existing schools for the severely deaf, preferably as day scholars, and placed with those children whose speech does not require to be developed.

Mr. MAXWELL ELLIS, London, said that prevention of otorrhœa is the first and best step in its treatment. Dr. Kerridge had demonstrated the close connexion between malnutrition and otorrhœa. Minor degrees of amelioration of the former came within the province of the medical officer of health. In defining chronic otorrhœa as a purulent discharge lasting longer than three weeks he knew that he might incur criticism, but an arbitrary limit was necessary as the two types of case differed so widely in prognosis. Certain factors were responsible for the chronicity of the condition :—

Nasopharyngeal sepsis in cases where there is a sub-total perforation of the drum.
Granulation tissue in the tympanum.
Granulation tissue in the attic region with perforations either in Shrapnell's membrane or the posterior marginal area of the pars tensa.
Infection in the mastoid antrum and cells.

Bone involvement may arise in all the last three conditions.

Tubal catarrh is an important factor in both acute and chronic cases, and may result from any or all of the following :—

Cold and damp.
Faulty metabolism, especially too great a proportion of fats and carbohydrates in the diet.
Local irritation by tobacco, alcohol or dust.
Neighbouring foci of infection, chiefly in the lymphoid tissue in the nasopharynx and the nasal accessory sinuses.
Lastly, a poor resistance of the patient to infection.

Attention to diet and hygiene covers most of these points, but local measures are necessary to ensure adequate tubal drainage. In the earlier stages of infection, when mucous-membrane swelling is a feature, astringent steam inhalations are useful. In the later stages, obstruction is more often due to external agencies, notably adenoid tissue. Infected lymphoid tissue is best removed surgically during a quiescent interval, and infected sinuses must be drained, either medically or surgically.

Applying these principles, the local treatment of acute otorrhœa is divisible into treatment of tubal catarrh and treatment of the actual discharge. In dealing with the latter frequent irrigation of the ear with a non-irritant solution of boric acid, using a rubber syringe, is the best routine treatment. The services of a trained nurse are unnecessary, as the average mother can usually be shown how to perform the manœuvre. Early in the disease, when congestion is present, syringing is followed, after drying out the ear, by a few drops of glycerin, to which carbolic acid can be added to a strength of 2½ per cent. if there is pain. Later, drops of rectified spirit (25 per cent.) can be substituted to assist in drying. Sulphanilamide should be exhibited in full doses and the usual general treatment of an acute infection administered.

In dealing with chronic otorrhœa the first step is the eradication of neighbouring foci of sepsis and the treatment of tubal catarrh. These measures will often cause a great diminution in the amount of the discharge, but in some cases with a moderate-sized perforation some residual mucus is constantly found. This is often due to the exposed tympanic mucous membrane, and closure of the drum cures the condition. Light cauterisation of the margins of the perforation may effect this closure. Another cause of the continuation of discharge is the presence of polypi or granulations in the tympanum. These can be removed with forceps or destroyed with trichloracetic acid or chromic acid. Where the mucous membrane has been largely replaced by unhealthy moist granulations a cure can sometimes be effected, after a few weeks of irrigations, by the local application of a powder consisting of iodine (1 per cent.) in boric acid. The powder is insufflated after a preliminary cleansing followed by drying with absolute alcohol, and this is repeated every other day. Zinc ionisation can also be used for these cases.

A group of cases remains where a purulent discharge persists in spite of these measures. The underlying cause must be bone infection or necrosis, attic disease or invasion by cholesteatoma. Careful radiological study may assist in the diagnosis. The treatment must be operative.

ADMINISTRATIVE MEASURES

Dr. A. G. WELLS, London, described the development of the London County Council aural clinics. They started with the foundation of the St. George's Dispensary, Blackfriars, by a philanthropist, Dr. Kirby. The dispensary included an aural clinic and

facilities for the performance of tonsil and adenoid operations. Dr. Wells was appointed aural surgeon to this dispensary, and was able to interest the Board of Education in the work. The L.C.C. later agreed to pay the dispensary a capitation fee for its school-children operated on there. By degrees a network of similar clinics grew up all over London, run by local committees with whom the L.C.C. made arrangements. This scheme is still in existence with the additional refinement of several days' postoperative inpatient sojourn.

In 1915 the L.C.C. agreed to establish a "special ear clinic" as an experiment, in the south-west division. This was so successful that one was started in each of the other four divisions within two years, but they were only able to carry out simple conservative measures. In 1917, with the support of the late Mr. Charles Heath, Dr. Wells was given permission to admit some of these children to the Metropolitan Asylums Board infirmary in Cleveland Street for surgical treatment. In 1921 the Cleveland Street infirmary was transferred to the Downs Hospital, Sutton, and a school established in the hospital to provide educational facilities during convalescence. The final link in the chain was forged in 1924, when the M.A.B. fitted up a clinic where postoperative treatment could be given to children discharged from the Downs Hospital.

Meanwhile, more treatment centres had been established—there are now 16—and more complicated methods of treatment introduced, such as zinc ionisation and diastolisation. Children at schools for the deaf were brought into the scheme in 1924. In 1934 testing with the gramophone audiometer was introduced. The nurse in charge of the instrument tests a group of children, and the failures are examined by an aurist who advises suitable treatment. With the parents' permission and coöperation this is then carried out at the nearest centre. A final hearing test is made at the conclusion of treatment. There are eight schools for deaf and partially deaf children, in addition to a boarding-school at Penn in Buckinghamshire for children with additional defects. Every child in these schools is examined once in nine months. Group hearing-aids are installed in all the schools.

DISCUSSION

Dr. A. F. ADAMSON, Hendon, asked whether the deaf children picked out by Dr. Kerridge became more deaf with the passage of years. There had recently been a great increase in the number of mastoid operations in the isolation hospital in his borough, and the proportion of dry ears on discharge from hospital was higher than formerly; he wondered whether conservative measures could have achieved the same end.

Dr. W. M. FELDMAN, London, was sceptical of the relationship between vitamin-lack and otorrhœa. He also asked whether there is any definite evidence showing that sulphanilamide is beneficial in these cases. He had noticed that a tonsil and adenoid operation was often unsuccessful in clearing up or preventing otorrhœa, and mastoid operations were often equally disappointing. Some advocates of the zinc ionisation treatment said that a cure could be guaranteed; this had not been his experience.

Dr. V. F. SOOTHILL, Norwich, was not convinced of the average mother's ability to irrigate an ear efficiently. He wondered whether any consideration had been given to the possibility of postural treatment.

In reply, Dr. KERRIDGE said that there were no statistics to illustrate the natural history of the deafness in these children. She too was not convinced of the specific rôle of the vitamins, but malnutrition is an undoubted factor in the production and perpetuation of otorrhœa.

Mr. MAXWELL ELLIS said that the experience at Hendon was exceptional, as the frequency of mastoid operations had been lessening in recent years and the introduction of sulphanilamide had accelerated this process. Conservative measures might have achieved the same results. No statistical evidence of the effect of sulphanilamide therapy was yet available, but nearly all aural surgeons were convinced that it diminished the intensity of the disease and reduced the tendency to complications. A tonsil and adenoid operation performed as a result of definite indications was as successful as any other surgical procedure carried out for an adequate reason. His experience had been that the average mother could be successfully shown how to syringe a child's ear. Beyond advising lying on the diseased side to facilitate a free discharge from the meatus he did not know of any special postural treatment.

Dr. WELLS said he was sure most deaf children become progressively deafer. He too was surprised that mastoid operations had increased in number at Dr. Adamson's isolation hospital, as this was contrary to his own experience. One factor in the lack of success of some mastoid operations was inefficient postoperative care. Zinc ionisation is eminently suitable for cases where disease is confined to the tympanum, but it naturally failed in other cases.

IRELAND

(FROM OUR OWN CORRESPONDENT)

THE IRISH MEDICAL UNION

THE annual meeting of the Irish Medical Union, to be held next week in Dublin, will have the special character of a centenary celebration. The union came into existence, it is true, as recently as Jan. 1, 1936, when it was formed by the amalgamation of the Irish Medical Association and the branches of the British Medical Association in the area of the Irish Free State. The Irish Medical Association had been established at a large meeting of medical men held in Dublin on May 29, 1839, but the British Medical Association, although founded (under another name) in 1832, had no connexion with Ireland until nearly thirty years later. Richard Carmichael, a distinguished Dublin surgeon and syphilologist, presided at the inaugural meeting of the Irish Medical Association in 1839 and was president of the association until ten years later, when he lost his life by drowning while riding homewards across the sands of Clontarf. With Carmichael was closely associated Arthur Jacob, a physiologist and eye surgeon with many original investigations to his credit, who in preparation for the reforms which, it was hoped, would follow the founding of the association had six months earlier founded the *Dublin Medical Press*, which under its present title of *Medical Press and Circular* still flourishes, though now published in London. Carmichael and Jacob had far-reaching schemes of reform of the medical profession, which were never realised, but the association which they founded still exists, and an offshoot therefrom is the Royal Medical Benevolent Fund Society of Ireland, which still carries on its work. Throughout the ninety-seven years of its life the Irish Medical Association was chiefly concerned with the protection of the interests of the members of the Irish poor-law medical service

and was their champion throughout the many years of struggle and hardship to which that service was subjected. The present body inherits that duty and finds that there is still much room for its activity.

The usual programme of the annual meeting of the union has been extended considerably for the coming meeting. For some years past there have been held a scientific session and the usual business meeting, followed by a dinner. This year there will also be a commemoration session, at which Dr. Robert J. Rowlette, a former president of the Irish Medical Association, will deliver an address entitled One Hundred Years of Medical Organisation in Ireland, and this address will be followed by speeches from, among others, Prof. T. G. Moorhead, a former president of the British Medical Association, and Dr. T. P. C. Kirkpatrick, a recognised authority on the history of Irish medicine. The subject of the scientific session will be modern developments of chemotherapy, to be introduced by Prof. H. F. Moore, of Dublin, who will be followed by Prof. J. M. O'Donovan, of Cork, Prof. W. M. Fallon, of Galway, and Prof. Moorhead. New features of the meeting will be a trades exhibition and a golf competition.

UNITED STATES OF AMERICA

(FROM OUR OWN CORRESPONDENTS)

APPENDICITIS

YOUR leading article of April 29 summarises a statistical study published by the Medical Research Council, from which it is concluded that the mortality-rate for appendicitis in Great Britain is unchanging. In this country the situation appears to be more hopeful. A table published by the Metropolitan Life Insurance Company last December showed that comparing 1935–36 with 1930–31 the average mortality-rate from appendicitis had decreased in every state in the Union except Arizona. The decrease ranges from −2·7 per cent. in New Mexico to −32·8 per cent. in South Dakota, and in most states it is −10 per cent. or more. On the other hand there is plenty of room for improvement. Among international rates Canada alone has a higher death-rate from this cause than the United States, where there were over 16,000 deaths attributable to appendicitis in 1936. It is noteworthy that the rates in the Rocky Mountain states are exceedingly high, being almost double those on the Atlantic seaboard. This phenomenon has been attributed to the lack of convenient hospital facilities.

The Metropolitan Life Insurance Company's figures are taken only to 1936, but the following rates from New York state during the last six years indicate that the progress may have been continuous up to the present time.

UPSTATE NEW YORK

Year	Deaths	Rate*	Year	Deaths	Rate*
1933	930	15·9	1936	840	14·0
1934	874	14·9	1937	765	12·7
1935	829	14·0	1938	661	10·9

* Per 100,000 population

AMERICAN MEDICAL ASSOCIATION CONDEMNS WAGNER HEALTH BILL

On May 17 the house of delegates of the American Medical Association adopted a report of its reference committee on the Wagner Health Bill by unanimous vote. The report places the association "unmistakably and emphatically" in opposition to the Wagner National Health Bill now before the Senate. It finds that the bill does not safeguard the continued existence of the private practitioner, that it proposes to make medical aid the rule rather than the exception, that it "insidiously promotes the development of a complete system of tax-supported governmental medical care." These and other objections are accompanied by the statement that "no other profession and no other group have done more for the improvement of public health, the prevention of disease, and the care of the sick than have the medical profession and the American Medical Association."

The house of delegates is in favour of the expansion of preventive medical services and the extension of medical care for the indigent and for the medically indigent, provided that needs shall be locally determined and administration shall be under local control. Any state that is in actual need of federal subsidy for this purpose should be able to obtain such aid "in a medical emergency," without stimulating every other state to seek and accept similar aid.

MICE AND CHORIOMENINGITIS

The virus of lymphocytic choriomeningitis was first isolated at the National Institute of Health in 1934, and has since been recovered in England, France and Japan. Dr. Charles Armstrong now reports the discovery of a natural reservoir in *Mus musculus*, the common grey house-mouse. The virus has been isolated in 3 out of 5 mice trapped in two homes in Washington, D.C., where proved cases of choriomeningitis appeared. As a control to this observation 21 mice were trapped in eight homes and buildings wherein human cases had not occurred. Dr. Armstrong was unable to recover the virus from any of these 21 mice.

MOTILE SPERMATOZOA PROVED STERILE

A unique experiment with human spermatozoa is reported by Frances I. Seymour in the *Journal of the American Medical Association* for May 6.

Mr. and Mrs. K had been sterile during eleven years of married life. Mr. K's seminal fluid contained 94 million highly motile spermatozoa per cubic centimetre with a motility-index of 18 hours. There was no discoverable defect in the reproductive system of his wife. Dietetic treatment, supported by ultra-violet irradiation, was ineffective. A three-month summer holiday in England resulted only in an increase in the motility-index to 21 hours. An attempt was then made to fertilise sixteen volunteer women by artificial insemination with the K spermatozoa on the 6th, 10th, 12th and 14th days of the intermenstrual period. This attempt persisted from October, 1936, to March, 1937. No pregnancy resulted. The experiment was then controlled by artificial insemination of the same sixteen volunteers, as well as Mrs. K, with the semen of a second donor known to be fertile. All seventeen women became pregnant, in the course of 14 months. Fourteen conceived through insemination on the 6th, 10th, 12th and 14th days of the intermenstrual period. In the remaining three cases it proved necessary to inseminate on the 2nd, 4th and 5th days. Seymour concludes that the fertility-index of spermatozoa may not be judged by conformity of the count per cubic centimetre, by ascertainable motility or by any of the other physical factors diagnosable by ordinary microscopic examinations.

In an editorial the journal comments on the uncertain legal status of children born as a result of artificial insemination and recommends that they should be legally adopted to ensure their inheritance.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index

FROM PETER QUINCE

I

THE funniest teacher I ever had once exclaimed at a bedside to a distinguished colleague: "This patient is a test-tube. Pour alkalis into him making his blood pH more than *x*, and his kidneys secrete thus; make it less than *x*, and his kidneys do the other thing"—or words to that effect. The other day, some fifteen years later, I again accompanied him on a ward round. Pausing at the foot of a bed occupied by a woman suffering from trigeminal herpes, he said: "This patient has intractable neuralgia. Her mother died recently and she has lost her job. Her relatives do not want to be burdened with her. She has nothing to live for and nowhere to go. . . . This pain is her Escape from Life. . . . It is her Little Friend." (Yes, that was his exact phrase!) "Is it wise even to attempt to part them?" All bystanders were visibly impressed and a foreign gentleman even went so far as to make a note. And we passed on to the next bed.

Which only shows how the psychological approach to disease is gaining ground, and how some old dogs can still learn new tricks.

* * *

In my hospital days, patients suffering from chronic functional disorders were regarded as nuisances and labelled "snags." You were snagged by them if they joined your outpatients', and you did your utmost to snag them on to another department. To admit a snag into your own ward was a terrible solecism frowned upon by your chief, your ward sister and your very clerks: to foist a snag into somebody else's beds was game and rubber. In outpatients, snags were treated kindly with a fortnight's or a month's supply of bromide and valerian or bromide and gentian, according to their sex. If they were more importunate they were snagged on to the electrical department, in the faint hope that mild electrocution, or whatever they got up to in that unexplored territory, would end their ailments. They rarely returned to medical outpatients', so it worked very well. Of course, if in addition the patient were definitely batty he was referred to psychological outpatients', and that was the end of him as far as the house-physician was concerned. Aid from the psychological department was invoked, too, if a patient became violently insane in the wards; but not if he were just quietly wretched with neurasthenia. Of applied psychology there was none: the useful function of the psychologist was to decide whether a snag were certifiable and if so to dispose of him.

I expect all that has been altered now, with the more modern concept that chronic functional disorders respond to a rather different method of approach; and perhaps general practitioners are now being fledged with some inkling as to how to deal with them. For the G.P. soon learns that the chronics form a not inconsiderable proportion of his practice. The most careful physical examination reveals no abnormalities—and yet they are ill or they wouldn't come to the doctor.

In general practice, having decided that an illness is functional and psychopathological in origin, you are faced with the problem—what is to be done about it? It is profoundly difficult to bring home to a patient your conviction that he has within him a "black spot, not so big as a pin's head, but waiting to spread and destroy him in the fullness of time"—when the black spot is neither cancer nor tubercle, but—Fear. Unless seriously distressed, patients in private practice are apt to take umbrage at the mere suggestion that they should undergo any systematic psychological treatment. It is an aspersion on their sanity. The only people who get sent to psychologists (they are convinced) are Frustrated Spinsters and Choirmasters Who Have Been Caught Out: into neither of which category do they themselves fit. For when a Bishop, say, is laid up with a cold or falls into the hands of a prostate-fancier, discreet bulletins are issued by the press: but the public is not informed while he is fidgeting on an analyst's couch. To many the anticipated cost of treatment, too, is prohibitive both in time and money: it will cost about as much as a major surgical operation and will take far longer. Moreover, the patient will very soon discover that it is the reverse of anæsthetic. This business of probing under guidance all your own sore points, reducing the dislocation of your own sense of humour and purging yourself of what is better down the drain can be most disagreeable; and to have to pay three guineas an hour while you do it seems an added insult.

If, in addition, you have somehow gained the impression—as I certainly have—that during the process not only does the analyst help the patient to analyse himself, but the patient helps the analyst to depths of self-analysis which he could never plumb alone—it seems less fair than ever. Surely for every really dirty crack you get back at your analyst ought he not to hand you back at least half a guinea?

Small wonder that many fail to finish the course and rise indignantly from the table, as it were, with their guts hanging out of the wound, and find themselves in a worse mess than they were when they started. (Which perhaps partly explains the disrepute into which psychotherapy can sometimes fall.)

* * *

Supposing to crown all this the nearest psychologist is 120 miles away and the patient earns but two pounds per week? Either the patient goes untreated or else is subjected to our own amateur efforts. I suppose we all enjoy (and perhaps some of us never emerge from) that recurrent phase of imagining ourselves born psychologists, confident in our armamentarium of common sense, worldly wisdom, experience, encouragement and brilliant guesswork, disparaging the professionals with their differing patois and their unwholesome insistence on sexual pathology. (As well might we eschew the post-mortem room!) But proud as we are of our psychological diagnoses, when it comes to treatment we come a cropper.

A nice little problem was set me by a panel patient—a labourer—with "true neurasthenia." (This diagnosis, I hasten to add, was confirmed by a consultant

to whom I immediately sent him.) After having supplied weekly certificates to that effect for some time I discovered a possible reason for his condition: he had been leading a double life quite successfully until recently when he had been found out by his wife—a vitriolic termagant—who in her turn, he alleged, was more than partial to the lodger. His home life had lost its last semblance of peacefulness, and the conflict between his desire to appear respectable and protect his legitimate children, and his desire to seek happiness with his leman was too much for him: hence his nervous breakdown. I did not know how to treat this disease, nor what advice to give. A colleague's dictum that the man wanted a kick up the pants did nothing to clarify the situation. So I just uttered weekly certificates with a guilty feeling that I was conniving at a misdemeanour—for was I not signing to the effect that the illness was not due to any negligence or other contributory act on the part of the patient? But after all I couldn't very well cut off supplies just because I had at least got the patient's confidence, could I? My uneasiness reached its peak when his club grew inquisitive and the regional medical officer sent me one of his beastly forms to fill in. How much should I divulge? My duty to the patient I felt should come first and I could visualise an unsympathetic regional officer (who wouldn't know the wife or the mistress—both patients of mine) dislodging him from club benefit and writing a snorter to the club about him—and about ME! How much might I get fined? I might (you know how the imagination races at 3 A.M.) be hauled up before the Ministry of Health or the G.M.C. and feature in all the Sunday papers. Happily it didn't come to that. The prospect of facing the R.M.O. put an end to the patient's indecision. With a morning face he signed off the club and disappeared with his inamorata. I have heard long since that he has settled down happily in his new home, is working well, and, under the pressure of separation orders, that he is still supporting both establishments. An immoral little story and one likely to shock some of the younger readers, I fear. Moreover, it cannot possibly end satisfactorily, for it is doubtful if any divorce judge would exercise the discretion necessary for either party's plea.

* * *

And then one is confronted with a patient with an organic disease—how can one assess the relevance of any psychological symptoms that may be discovered in his case? The most confusing anomaly encountered in the psychological approach to organic disease is that one finds that quite healthy and cheerful people on investigation seem to have enough conflicts, phobias, repressions, frustrations, intolerable environments and whatnots to produce about half a dozen psychoneurotics: but, apart from being a little odder perhaps than you or me, they do nothing noteworthy about it.

In general practice I once had a patient from whom, after months of ineffectual treatment for his gastric symptoms, I elicited that his great frustration in life was that he enjoyed spanking his wife and was strangely attracted by the idea, whereas she didn't like it, and kicked up a fuss. I see my mistake now but at the time in desperation I assigned to it Great Significance. My interview with the wife, suggesting that if she indulged this very mild flagellant propensity of his she might develop a healthier and happier husband, merely lost me two patients and still makes my ears redden when I think about it.

Dear reader, you needn't laugh. I bet you have made howlers just as blood-curdling. What about that time when you were surly with a patient for getting you out of bed and told him that he wasn't as ill as all that, and he told you he was, and proved it by dying before the morning, eh?

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED MAY 20, 1939

Notifications.—The following cases of infectious disease were notified during the week: Smallpox, 0; scarlet fever, 1784; diphtheria, 790; enteric fever, 20 (24 "expected"); pneumonia (primary or influenzal), 850; puerperal pyrexia, 182; cerebro-spinal fever, 30; acute poliomyelitis, 4; encephalitis lethargica, 7; dysentery, 39; ophthalmia neonatorum, 114. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on May 26 was 3122, which included: Scarlet fever, 710; diphtheria, 582 (carriers, 22); measles, 4; whooping-cough, 1019; puerperal fever, 21 mothers (plus 12 babies); encephalitis lethargica, 303; poliomyelitis 4. At St. Margaret's Hospital there were 23 babies (plus 12 mothers) with ophthalmia neonatorum.

Deaths.—In 126 great towns, including London, there was no death from smallpox, 1 (0) from enteric fever, 2 (0) from measles, 3 (0) from scarlet fever,[1] 22 (2) from whooping-cough, 25 (5) from diphtheria, 34 (7) from diarrhœa and enteritis under two years, and 31 (5) from influenza. The figures in parentheses are those for London itself.

Birmingham reported 3 deaths from whooping-cough, Portsmouth 2. Fatal cases of diphtheria were scattered over 15 great towns, Birmingham reporting 3, Manchester, Sunderland, Smethwick and Norwich each 2.

The number of stillbirths notified during the week was 255 (corresponding to a rate of 39 per 1000 total births), including 44 in London.

1. Last week the notifications for scarlet fever numbered 2001 (not 1001).

LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.—Sir Cuthbert Wallace, president, took the chair at the annual general meeting of the society held at Victory House, Leicester Square, on May 17. He began by recording the death of Dr. Hugh Woods, a former secretary of the society for forty years, and of Mr. Sydney Spokes and Dr. Margaret Kettle, members of the council. The year, he said, had been a record in applications for advice and assistance, a total of 1800. Membership had increased substantially and appreciation of the services rendered was shown in the remark "I cannot make out how the society gives us all that it does for a subscription of a pound a year" made to him by a member of a hospital staff in the Midlands. He emphasised the value to the practitioner in trouble of having a good record of his case. Mr. W. M. Mollison, treasurer, said the society's position was sound, with excellent reserves. Last year it had kept within its income. The cost per member which had been £1 5*s.* 7*d.* in 1936, and £1 4*s.* 1½*d.* in 1937, was only 18*s.* 0½*d.* in 1938. Mr. G. F. Stebbing, chairman of council, proposed and Dr. C. O. Hawthorne seconded Sir Cuthbert's re-election as president. Four retiring members of council were re-elected: Dr. Thomas Beaton, Mr. Mollison, Dr. G. M. Stoker, Dr. Raymond Stowers. Mr. Mollison was re-elected treasurer and Dr. R. W. Durand secretary. In proposing re-election of the solicitors, Mr. Harry Stobie spoke of the invaluable work of Messrs. Le Brasseur and Oakley, and mentioned the name of Mr. Ruffell, litigation clerk, upon whose shoulders fell much of the detailed work. Dr. Durand, replying for the staff, said that the answer to the simplest question frequently entailed quite a lot of labour, and he testified with pleasure to the spirit of team-work in the office. The meeting terminated with a vote of thanks to the president.

LETTERS TO THE EDITOR

THE PSYCHOLOGIST IN WAR-TIME

SIR,—In connexion with Sir Arthur Hurst's letter in your last issue, I should like to emphasise the importance of early psychological treatment for cases of functional nerve illness in war-time. This was one of the outstanding lessons of the Great War. It had become apparent to me during months of work with cases of war-neurosis in Maghull Military Hospital under Major R. G. Rows in 1915, and in the spring and summer of 1916 when I was working as the first resident medical officer of the newly established Maudsley Hospital under Major (later Sir Frederick) Mott. But I was able to put it to the test in the autumn of 1916, when I was stationed at No. 21 Casualty Clearing Station at Corbie, on the Somme, under Lieut.-Colonel H. E. M. Douglas, V.C., through the good offices of Lieut.-Colonel C. S. Myers, and given charge of the treatment of all the nerve cases of the Fourth Army of the British Expeditionary Force. I then found that an average of two weeks' general and psychological treatment of these cases enabled me to return 70 per cent. of them to duty in the line. The remaining 30 per cent. went down to base hospitals in France and England for further treatment. Much of this early treatment "in the field" could be regarded as being prophylactic in nature, raising morale and cutting short the further possible development of functional symptoms. Of the cases, 15 per cent. were definitely hysterical in type, with functional amnesia and other manifestations of crude functional dissociation. With every 1000 cases of psychoneurosis and organic nerve trouble (not surgical) which I saw under these conditions in the field there also passed through my hands about 125 cases of psychosis (schizophrenia, melancholia, manic-depressive psychosis, paranoia, &c.). I feel little doubt that these various percentages will hold good, within narrow limits, in any future war of a similar nature, since they are based on a study of several thousands of cases.

My work at Craiglockhart War Hospital, Edinburgh, in 1918, like that at Maghull in 1915, demonstrated to me the need of prolonged and radical analytical treatment for the more severe cases of psychoneurosis, but, in the light of the above-mentioned statistics, these are a minority of all such cases caused by war service. Adequate training of the troops in their military duties and firm but considerate military discipline are important factors in diminishing the incidence of war-neurosis. Care for the soldier's general health and comfort, with adequate rest and recreation in the intervals between "pushes," all work in the same direction.

As history has proved throughout the ages, a commander who is a good psychologist, in the practical sense, gets the best out of his troops.

I am, Sir, yours faithfully,

Harley Street, W.1, May 29. WILLIAM BROWN.

THE PRESENT POSITION OF DENTISTRY

SIR,—In your leading article last week you remark once more on the fact that the number of annual additions to the Dentists Register is inadequate to supply the dental needs of the people. This is a matter which may well become grave and is certainly not without a cause. It is not due to public ignorance of the inadequacy, for this has for many years been made known in the press in articles which have gone so far as to represent a dental career as a golden opportunity. The reason lies in the conditions of livelihood and remuneration of the less fortunate and more numerous dental practitioners and is not unconnected with conditions of service under the National Health Insurance Acts. The remedy which the Dental Board has attempted, the expenditure of £217,000 on bursary grants to students, is no more than a costly palliative.

While an improvement in the remuneration of practitioners sufficient to attract an increasing number of students of the best type is highly desirable, the alternative solution—a serious attempt to reduce the necessity for dental treatment—is even more important. Few people can doubt that the means of producing a considerable reduction are already within our knowledge, or that research has now reached a stage where with some substantial encouragement far greater results could be achieved. It is a matter of great regret that the heavy expenditure of the Board upon such temporary expedients as bursaries prevents it from giving greater support to measures of more lasting value. I am, Sir, yours faithfully,

Harley Street, W.1, May 29. MARTIN RUSHTON.

FIRST-AID POSTS

SIR,—The question of first-aid parties and first-aid posts is looming large in the minds of civilian medical practitioners who would have to staff them in time of war; and there is still apparently some uncertainty about their functions.

In this borough of Barnes we have been actually engaged in A.R.P. work since October, 1936, when I conducted my first course of anti-gas lectures, and we have naturally accumulated a certain amount of experience. Our arrangements are based on the supposition that the first casualty services to come into contact with the air-raid victims will be the air-raid wardens. The warden corresponds to the semi-trained regimental stretcher-bearer of the army organisation, and he gives simple first-aid in the first instance. Our air-raid wardens in this borough have all had elementary courses of instruction in anti-gas, in first-aid, and in message-writing. On finding casualties it is the warden's duty to notify the control centre of the borough by telephone or messenger. The air-raid precaution officer of the area, at the control centre, transmits location of the casualties to the medical officer of health by telephone or messenger; the M.O.H. notifies the medical officer in charge of the first-aid post, and he in his turn sends out his first-aid personnel. It has been suggested that there should also be a mobile unit, corresponding to the surgical teams in the war, which would attend casualties on the spot; but personally I think a mobile unit would be better occupied in helping a hard-pressed first-aid post, or even a casualty-clearing hospital, with its casualties. Rescue squads are employed to extricate casualties buried by demolished buildings.

The casualties, after receiving first-aid attention if necessary, are brought to the first-aid post, either as walking wounded, or lying or sitting cases, in the ambulance car, or even by stretcher-bearer carry. The number of personnel employed here must obviously depend on the trained local men and women available. The original idea of the Government was to train one person in every fifty of the population in first-aid work.

The number of first-aid posts required for each district depends, of course, on the size and population of the administrative A.R.P. area, and they should

be so arranged that anyone can walk to one of them within ten minutes. (This time-limit is set by the delayed action of mustard-gas.) The trained personnel, male and female, numbering 50–100 or more, are drawn from the British Red Cross Society and St. John Ambulance Brigade. The medical man in charge of the post is a local civilian practitioner, who gives his services part-time in conjunction with similar practitioners working in relays. His position at the post, and in the whole scheme, is of the greatest importance, for he is the first medical man to deal with the casualties, both from point of view of treatment and (not less vital) of classification and disposal. It is essential that this medical officer should have received anti-gas instruction, for it is here that presumably the majority of gas casualties—i.e., the tear-gas and sneezing-gas cases—can be given a little treatment and instructed to go home and report next day to the doctor if not better.

It is assumed that the first-aid post is sited in a special building proof against gas, blast and splinter, and if possible against direct hits, with proper sanitary arrangements, lighting, and water-supply. It has been suggested that the posts should be in the outpatient department of a general hospital, but this is not always possible, and therefore we have to site our first-aid posts in some suitable earmarked building. The post should have: (1) accommodation for medical officer and staff; (2) accommodation for 50–100 casualties, and some place where casualties can remain under shelter until evacuated; (3) ablution facilities and latrines; (4) apparatus for warming the building, for warming blankets, and for warming collapsed patients; (5) cooking arrangements; (6) facilities for adjusting dressings and splints; and (7) reserve supplies of blankets, hot-water bottles, Thomas splints, shell dressings and ordinary dressings. Some stretcher-bearers should be detailed for loading and unloading stretchers, and an exchange dump of stretchers and blankets may be formed so that bearers can replace those that they have just brought in. Provision should be made for necessary clerical assistance so as to record particulars of patients. Separate accommodation should be available for gas cases, with equipment, including Haldane's oxygen apparatus and pyjama suits. The post should be in telephonic communication with the A.R.P. officer, the M.O.H. and casualty-clearing hospital, and the officer commanding the car-park at the clearing hospital. At the first-aid post very urgent surgical assistance can be given, antitetanic serum injected and morphia administered.

For the proper functioning of the first-aid post and the success of the scheme, it is essential that the general public should have been previously instructed, either by the air-raid wardens or local authority, or even by Government broadcast, to report direct to the first-aid posts and not to doctors' surgeries or to outpatient departments of hospitals. From the aid post some of the walking wounded will be sent home after suitable treatment. The severe cases can be taken in motor-bus, lorry or charabanc to the casualty-clearing hospital. The function of the first-aid post is to act as a shield to the casualty-clearing hospital in relieving the latter of unnecessary casualties, and to be efficient it should evacuate casualties as speedily as possible, to prevent unnecessary congestion in the "front line." Obviously one of the most important links in the chain of evacuation is a speedy mobile ambulance service. Tradesmen's vans can be improvised in an emergency as light ambulances and trailer vehicles may be attached to ordinary private motor-cars.

As many of your readers are aware, the Ministry of Health, through the local medical officers of health, is instituting the appointment of civilian medical practitioners to be in charge of first-aid posts during peace-time, and one of their duties is to carry out a monthly inspection of their post and personnel, for which services they are being paid a retaining fee. The secret of success consists in as much preliminary organisation as is possible in peace-time, with rapid expansion of all the units in war-time and rapid evacuation of the casualties from the front line back to the base hospitals.

I am, Sir, yours faithfully,

J. B. SCOTT.

Putney, S.W.15, May 26. Lieut.-Col., R.A.M.C. (T.A.).

AIR-RAID CASUALTIES IN LONDON

SIR,—Your correspondent, "X," writing in your issue of May 6, explained that he concealed his identity because he wanted his views to be considered only on their merits. We have hesitated to comment upon them, lest we should, all unaware, be differing from one of the recognised leaders of our profession. There are, nevertheless, some few comments which must be offered, particularly as "X" has done us the honour of quoting us.

If we take his meaning aright, "X" compares London to a besieged city where movement is of necessity limited, and where no-one can tell where the next blow will fall. He concludes that evacuation of casualties is not to be advocated and he asks instead for protected casualty hospitals, to complete the treatment of the patient *in London*.

No-one can deny that evacuation, no matter how carefully and gently carried out, is bound to be in some degree harmful to the patient. It is also undeniable that evacuation may be very difficult to arrange. "X's" solution of the problem is therefore attractive at first glance. Its practicability, however, is open to question. We have stated elsewhere our reasons for believing that provision must be made for a minimum number of casualties of the order of 50,000 a day.[1] It would be necessary to deal with such numbers of casualties in London to prepare fully protected hospital space for something like a quarter of a million beds. Now, we do not think that this is impossible; the labour and material are available, and could be applied. It seems, too, that the expenditure of such an effort might save a number of lives. But it would not be economic; more lives could be saved by a much smaller effort directed towards prophylaxis—that is, the provision of full protection for the public *before* they become casualties. A less important argument against treating casualties in London is that the psychological environment would be far from good. We are therefore forced to return to the precepts of orthodox military surgery, and to insist that the prime essentials are efficient first-aid, careful classification, gentle handling, and rapid evacuation. Not one of these ideals will be easy of attainment; it is therefore the more necessary that we should understand the problems involved and prepare our organisation with great care and thoroughness. It is also urgently necessary that the importance of our preparations should be realised by the powers that be. Unfortunately, there are as yet few signs of any such realisation.

It is, alas, doubtful whether any casualty organisation could cope for long with the astronomical numbers of casualties which seem to be likely if the

1. *Med. Offr*, March 25, 1939, p. 117. We are now of the opinion that this figure is an underestimate.

protection of the population is not taken seriously; but we think that the scheme we described in the article quoted by "X" has at least a chance of success. Briefly it depends upon two considerations; first, the anticipation that casualties will reach a post within half an hour of their occurrence; and second, the observed fact that not more than about 5–8 per cent. of casualties [2] require immediate operation and warding, the remainder being able to stand a journey of some hours. It cannot be sufficiently stressed, however, that evacuation must be preceded by careful classification, and that classification implies plenty of space. It should not be (but is) necessary to emphasise the fact that all units in the casualty service must be as fully protected as possible. We therefore described the unit which we called a Classification Evacuation Post; a post as carefully protected as possible, tactically sited, and large enough and sufficiently well prepared to receive *all* casualties in the area served, to classify them, to arrange the evacuation of the majority, and to deal with the small minority of cases of "first urgency." It is not necessary to recapitulate further.

It will be seen that we heartily agree with "X" in his advocacy of full protection for units of the casualty service inside the danger areas. And we must agree with his contention that evacuation will be difficult. Evacuation, nevertheless, is neither impossible nor undesirable. To claim that it is, and to ask that it should be replaced by the construction of fantastically expensive bomb-proof hospitals of enormous size will do no good and may easily cause the whole principle of bomb-proofing to be condemned.

We are, Sir, yours faithfully,

L. CROME,
R. E. W. FISHER,
G. B. SHIRLAW.

London, N.W.3, May 26.

HEART-FAILURE

SIR,—Dr. Shirley Smith's interesting survey of heart-failure (p. 1168) does not, I know, claim to be exhaustive, but it omits what I believe to be one of the earliest and most valuable symptoms—namely, nycturia. Urination at night may be due to various causes, especially in elderly people, and with men it is almost always put down to some degree of prostatic enlargement which may not be clinically demonstrable. As a matter of fact in many such cases it is due to incipient heart-failure, and recognition of this fact may be the means of deferring for a long while the development of more severe and obvious signs of failure. As a symptom it is usually present some while before any trace of œdema can be detected in the legs, though some degree of dyspnœa on exertion may coexist.

A moment's thought will show the cause of this symptom. As soon as the heart becomes in any way embarrassed the circulation through the body is to some extent interfered with, and this will show itself, inter alia, by a diminished output of rather concentrated urine. At night, when the body is resting, the circulation tends to improve, and this results in the excretion of urine in such quantities as to cause the patient to get up to urinate several times in the night and so interfere with sleep. This urine tends to be more dilute than the day urine—the reverse of what normally obtains—and is really the excretion of a subclinical œdema of the tissues. This condition is one in which I think the steady administration of small doses of digitalis is of great benefit, and by watching this symptom the patient is able to keep a fairly sensitive check on his progress. As he improves nycturia diminishes, and any increase is an absolute indication for less exertion and more rest.

Dr. Shirley Smith states categorically that "There are no indications for the subcutaneous or intramuscular injection of digitalis." This might be allowed to pass if it read "There *should* be &c," but I can assure him that in poorer-class general practice many patients derive great benefit from such injections where the indications are not urgent enough to warrant intravenous injections and where facilities for rectal administration are absent.

I am, Sir, yours faithfully,

Winsford, Cheshire, May 25. W. N. LEAK.

PROGRESS AGAINST PNEUMONIA

SIR,—Your leading article of May 13 encourages me to air an opinion that must, I think, be shared by others, as to the value of the sulphonamides in pneumonia. Recently, I have seen three cases of delayed resolution after pneumonia treated with one of the sulphonamides. It may be that the drug was not properly used, but another explanation suggests itself. It might be expected that an agent which tends to depress leucopoiesis, as we know the sulphonamides may do, would hamper the good work of the leucocytes as fibrinolytic agents. The familiar picture of unresolved pneumonia, as revealed by the microscope, of alveoli devoid of leucocytes but filled with fibrin, is explained as an exposition of cause and effect. It may be that chemotherapy is mainly effective during the initial phase of pneumonia but that its continued use may interfere with natural processes of repair. As you suggest, it seems reasonable to suppose that chemotherapy and specific therapy might, to better advantage, be used in combination. For many years I have combined the use of Quinisan with very small, increasing doses of Wynn's vaccine as a routine treatment of pneumonia. The results compare favourably with those claimed for M. & B. 693. I am writing this in the hope of eliciting the opinions of others, who may have had similar experiences and who have found that, in the treatment of pneumonia, the sulphonamides have their limitations.

I am, Sir, yours faithfully,

Torquay, May 26. PAUL GIBSON.

A NATIONAL LANGUAGE FOR INDIA

SIR,—On Feb. 18 you commented on an article of mine entitled "Is a national language necessary for scientific education and expression in India?" published in the *Journal of South Indian Medicine* for November, 1938. Your comment, I feel, has missed the point of my article and explains only the difficulties. To say that millions of Indians speak the Dravidian tongues rather than Hindustani is no answer to my estimate of the national craving for a greater and united India, in which a lingua-franca is absolutely necessary. We do not want to create a Europe in India, a Europe, the home of multitudinous nations, big, small and insignificant, and a Europe of as many tongues as there are in India. It is midsummer madness to think of making English the national language of India; Slater may have said that "the extent to which English has already become the language of South India is amazing," but the south Indian masses, nearly 95 per cent. of them, do not know English, in spite of two centuries of English contact. Let anyone address a mass meeting in English, in the city of Madras—perhaps

2. cf. A. Tudor Hart (*Brit. med. J.* May 27, 1939, p. 1099), who gives 2 per cent. for this figure.

the citadel of the English language in India—without any translators; he will find that he is addressing a minority of high-school and college students and clerks. In the villages, in a population of a thousand or more, one may find one or two knowing some understandable English. Hitherto the English officials—I mean the majority of them—have been living an exotic life; and no wonder the results linguistically are almost insignificant. But thanks to numerous voluntary organisations, especially the Dakshina Bharath Hindi Prachar Sabha, and the policy of the Congress government at Madras, Hindustani has already made headway and in a decade, if progress is steady, it will have taken permanent root in South India.

You say that I seem to be a believer in the Aryan myth. Let me state categorically that a modern progressive Indian has absolutely no myth about him. Throughout the epochs of Indian history, Indian practice has been toleration and assimilation. Compared to the colour prejudice in South and East Africa and Herr Hitler's own untenable theories, India, especially the educated India, has no "myth" complexes. India is suffering from too much political and material religiosity. The so-called official religions are prostituted for material purposes. A future India will perhaps be much happier, without the irrational political religions.

But I am glad you realise my sincerity when I wrote that "Of all the foreign languages from the scientist's point of view, English is the best." The language of Shakespeare and Shaw can stand on its merits, irrespective of the political needs of India and the world.

I am, Sir, yours faithfully,

Coimbatore, May, 10. E. S. GOPALAN.

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

By MEDICUS, M.P.

PALESTINE—civil defence—camps—Finance Bill and Czechoslovakia—these have been the diet of the House of Commons in the week before Whitsun. And so crowded is the business pressing for completion that the House had to sit on Friday, May 26, instead of as usual adjourning on the Thursday and is due to reassemble on Monday, June 5, instead of the customary Tuesday.

The Palestine debate showed deep divisions in the parties. Cabinet ministers abstained on the Government side and privy councillors voted against the Government. It is clear the Palestine problem, certain aspects of which, and in particular certain conflicts in respect of which, are written of in the Bible, will not be permanently and peacefully solved in a period of twenty or a dozen years. Statesmanship here has to deal with a problem that depends on the biological building-up of races and on the laws not of Left and Right in a modern political division of opinion, but of far more fundamental differences which determine the survival or disappearance of peoples.

* * *

Civil defence is becoming an ogre in its powers of devouring recruits for its service. Vast protection services in the towns and vast evacuation services in the country areas are occupying a great multitude of people. The bill clanked its way through a day and a half of the committee stage and only finished when it did on Wednesday evening because the length of the clauses and the multiplicity of the amendments had reduced all concerned to a condition in which they wanted at all costs to get something through the House and on to the statute-book. A most interesting feature of the Defence Bill is that the work to be carried out under its provisions is very much more extensive than even the minister in charge realises.

A great deal of attention has been devoted recently to the organisation of the casualty services and the changes have been so great that it is doubtful if the ministers concerned are even now fully informed of their extent. It is common form now that the hospital organisation in London is to be in sections radiating out into the country around. The head of the section is to be a teaching hospital and in the section going out are all the other parts of a complete hospital scheme, including the "base" hospitals. But what is not realised is that the scheme for giving first-aid to and collecting casualties has been very greatly modified as the result of the teaching of the A.R.P. school in Cromwell Road.

Up to the present the terminology of first-aid and hospital work in connexion with civil defence has been based on the experience of trench warfare in the 1914–18 war. The new terminology now introduced is based on the war we are now waging for position and technical advantage before the guns go off and the bombs explode. Every aeroplane invention, every increase of aeroplane speed or of bomb-carrying capacity or of defence against aeroplane attack alters the civil defence programme. Gas is less of a danger and less of a problem now that it was a year ago, because our gas defence is better on the one hand and the opportunity for gas attack, owing to the height at which aeroplanes can be compelled to travel, is on the other much less.

In this new type of war, the exact characteristics of which are gradually emerging, there will be only two zones in the country. The first will be the zone in which casualties will occur, the collecting zone, and the second the zone to which casualties will be sent, the evacuating zone. In the collecting zone, which will cover the cities and other vulnerable areas, the services which are in the "front line" will be of primary importance and they will all have to work together. There are the rescue and demolition squads, the fire-fighting squads, the decontamination squads, the repair squads, and the first-aid parties. They are called first-aid parties now, and not stretcher-bearers, because their primary duty will be that of giving first-aid and then stretcher-bearer duty will be subsidiary to that.

The medical problem in case of attack is becoming clearer. Attack, it is to be presumed, will be by flights of aeroplanes which will be flying at a height of over 15,000 feet and at a speed of 250–300 miles an hour. At that height and speed the maximum accuracy of bombing aim is not very great. In order then that any objective may be hit, bombs will be released in a pattern around the objective and an area say 300–400 yards in diameter will be seriously damaged. In that area with aeroplanes of present bomb-carrying capacity you may have 600 or more casualties. But you will not have casualties in ones or twos scattered over a wide area. There may be patches of pattern bombing and their casualties fairly close together, if important objectives are close together, but otherwise wider separation of

damaged patches with much unaffected territory between will be the rule.

To deal with these casualties a concentration of all the types of services operating in the streets will be required. The first-aid parties will be equipped in the future with a motor-car to take them about and one or more (adapted) ambulance vehicles for sitting and lying wounded. The modus operandi of a first-aid party when it is notified that an attack has been made and casualties caused will be to go as near as possible to the damaged area with their vehicles and then walk or climb over ruins on foot to the casualties themselves. The first duty will be immediate first-aid; the second duty will be the vitally important decision as to disposal. This decision must be made by the first-aid party, or it cannot be made until a first-aid post is reached. And if all casualties go to the F.A.P. then every raid will be followed by a period in which the F.A.P. is surrounded by a crowd of people struggling to gain admittance—in most pitiable conditions. The duty of decision as to disposal will follow simple rules now being considered by the Home Office and it is a decision which first-aid parties can be taught to make. The decision as to disposal will vary between (1) home; (2) first-aid post; (3) hospital of first reception (formerly casualty-clearing hospital); or (4) base hospital. There will no doubt in practice be other types of hospital, as happened in 1914–18, for particular types of injuries.

The teaching hospitals in London which are to be at the head of each section will function firstly as first-aid posts and secondly as hospitals of first reception, limited to 200 beds. It is the intention of the scheme that all surplus beds and bedding and all surplus instruments and supplies (surplus, that is, to an establishment of 200 beds) shall be sent out of London to the base hospitals of one kind or another. It is hoped that this will be done; but certain authorities are already being "sticky" about it.

First-aid parties and other "front line" services will remain under the Lord Privy Seal direct—that is, under Home Office organisation—and this section includes the police. First-aid posts and hospitals will be under the Ministry of Health. It is still a weakness of the general planning of the medical services that there are not enough first-aid party volunteers and not enough of first-aid post personnel. However, plans of training—including training of medical practitioners themselves—are also being made; so by the time that peace becomes assured we shall be completely ready.

FROM THE PRESS GALLERY

Hospital Accommodation for Air-raid Casualties

IN the House of Commons on May 23, when the Civil Defence Bill was considered in Committee, Mr. BERNAYS, parliamentary secretary to the Ministry of Health, moved an amendment which made it clear that the Minister could arrange for removing mental patients as well as ordinary patients to other institutions to make room for casualties in an air attack.—Sir JOHN ANDERSON, Lord Privy Seal, assured Mr. Ede that the clause which excludes from the duties of the council the erection of new buildings was intended to exclude a block of new wards or other structures of that kind within the existing hospital, and not merely a new hospital or other complete building.

Evacuation and Public Health

When the discussion of the bill was resumed on May 24, Mr. EDE moved an amendment providing that local authorities should have power to reserve premises compulsorily and to impose restrictions on transference. He said those responsible in the reception areas had misgivings as to whether all the accommodation that had been offered would be available. It would be a disaster if when the children allocated to a particular village or small town were evacuated it was found that a day or two before someone had come out from the town and by paying a fabulous sum of money had deprived them of the opportunity of placing the children there. Authorities in the reception areas should be given power to reserve the accommodation which had been voluntarily offered to the Minister of Health in response to his appeal.—Dr. HADEN GUEST agreed with Mr. Ede that the places to which people were going should be definitely earmarked in advance. Otherwise there would be a danger of overcrowding in the reception areas which would be extremely disadvantageous from the health point of view.—Mr. ELLIOT, Minister of Health, said that in the choice of those to be evacuated priority had been given to children and the organised movement under the Government scheme would therefore comprise school-children who would travel in school units with their teachers, and younger children who would go with their mothers, or some other responsible person. On the results of the survey that had been carried out block allocations of the priority classes had been made to the reception areas, and the responsible authorities had been notified as to the numbers that would be dispatched to their charge. The general plan of the bill was to confer on the Government and other bodies powers which must be exercised in peace-time, while the powers necessary after the outbreak of hostilities would be held in readiness in the shape of defence regulations to be promulgated if an emergency arose. The powers for the compulsory provision of accommodation, or in other words billeting powers, fell to be included in the regulations and not in the present bill. He would be prepared to take power in the present bill, under which it would be possible for the Minister to promulgate regulations to deal with billeting as soon as he was satisfied that an emergency was imminent.

The Medicine Stamp Duties

In the debate on the second reading of the Finance Bill in the House of Commons on May 25 Mr. GRAHAM WHITE said he was at a loss to know why at a time when money was so badly needed the Chancellor of the Exchequer should have so precipitately abandoned an income of £750,000 a year by the remission of the medicine stamp duties. There was no wish to curtail the privileges of those who had been in the habit of selling and distributing these products, but it seemed to him that the way would now be open for the sale of drugs without disclosure of content or formula through slot machines, by hawkers and in other ways, and he did not think that anyone could suggest that that was in the interests of the health of the community. Many of these prescriptions and nostrums were in the nature of pain killers. A person in pain took one to obtain relief and then went on taking the drug with the result that great injury was inflicted on him.—Sir JOHN SIMON, Chancellor of the Exchequer, said most careful work had been done on the subject by a select committee and he had examined the report of that committee with great care. The committee were entirely convinced that the present archaic system of taxation should be repealed, and they suggested something to take its place. The present duties could not be maintained because they were unworkable, and the Government were challenged as to whether they were working them lawfully. The alternative scheme suggested by the committee was not practicable. He did not think that the proper way to deal with quack medicines—even if they could identify them by this sort of process—was by charging a small tax on those which were sold. It was essentially a matter for control and regulation by the law of public health. It was not sound to say that some medicines were good, and

that those should not be taxed, while others were quack medicines the sale of which would be permitted subject to a small tax. It was the most difficult thing in the world to draw a line between a good medicine and a bad one.

Mr. WAKEFIELD said as far as he could gather informed medical and other professional opinion very definitely was that harm might come to the people as a result of the repeal of these duties. It was generally felt that the door would be left open for indiscriminate advertising and for placing various remedies on the market in a way which could not be done now. That would undoubtedly be harmful to the health of the people. There was a professional body who would be harmed by the repeal of these duties, namely, the qualified chemists who constituted an essential unit in the national health-insurance system. Up to now these chemists had certain privileges in the sale of these medicines, and if they were withdrawn there would be a considerable falling off in the number of suitable candidates for the profession.

Medical Students and Military Training

In the House of Lords on May 25 the Military Training Bill was considered on report. Lord ADDISON moved an amendment to permit any person to be exempt from liability to be called up for military training on the ground of his industrial skill. He said that as the bill stood large numbers of highly skilled men in most critical occupations would be called up just at the end of their apprenticeships when their skill was almost at its highest point.—The Earl of ONSLOW said he would like to put the case of doctors. It was quite inconceivable that a doctor could be employed in the Army in any other capacity than that of an officer of the R.A.M.C., but in war-time he might, of course, be also employed to look after the civil population, or take part in other activities. He would, however, always be employed as a doctor. Now it seemed that the young medical student of 20 or 21 doing his six months' training in the Army would be taken away from his training as a doctor for a period which would really be contrary to the public interest, because the country wanted him as a doctor and not as a soldier. He suggested that if the medical student served for a month or two months that would not hamper him very much, because he might then go back to the hospital, or even to a military hospital which would perhaps teach him more than he might learn if attached to the R.A.M.C. reserve; or he might do other training if required.—The Earl of BIRKENHEAD said that the Government did not feel justified in taking power to exempt men of this age from military training They hoped and believed, however, that most of these men would have their training on some of the large number of technical jobs which now existed in the Army.

On the motion for the third reading of the bill, the Earl of MUNSTER said that there were three factors which they had to take into account in dealing with the question of medical students. First there was the period of their course at which medical students did their military training. If that was postponed until they qualified he understood they would come up for training at the age of 25, and in that case this period would not occur until three years had elapsed. Secondly, the number of medical students at one time and the training facilities which would be available had also to be taken into consideration. Lastly, the fact that the R.A.M.C. militia required men who would remain in the R.A.M.C. as nursing orderlies when they were required had also to be taken into account. These were all matters about which he could unfortunately give no further information at this stage.—The bill was passed and the Royal Assent was given to the measure on May 26.

Both Houses of Parliament adjourned on May 26 for the Whitsun recess. The House of Lords will reassemble on June 6 and the House of Commons on June 5.

QUESTION TIME

THURSDAY, MAY 25

First-aid Posts in Islington

Dr. HADEN GUEST asked the Minister of Health whether he was aware that in Islington, with a population of over 300,000 within 3000 acres, there was a shortage of premises suitable for use as first-aid posts; that the board of management of the London Fever Hospital had refused to permit the borough council to equip and use a part of the hospital premises which was isolated from other buildings until the entire evacuation of the hospital had been carried out in time of war, although he had already approved the proposal in principle; and whether he would take steps to see that the management board of the hospital altered their decision.—Mr. ELLIOT replied: I am aware that the borough council have had some difficulty in finding enough suitable premises as first-aid posts but eight have now been located and these will be supplemented by four mobile units. The London Fever Hospital has now agreed that one of the eight posts should be located in the hospital.

Finances of Voluntary Hospitals

Sir GEORGE BROADBRIDGE asked the Minister of Health whether he was aware of the serious financial condition of the voluntary hospitals of this country, particularly in London, due principally to reduced amount of subscriptions and falling off in donations and legacies; and whether, as this position was due to lower interest-bearing securities and increased taxation and generous public response to the Czechoslovakian and Jewish refugee appeals, he would take steps to assist these hospitals and so prevent them reducing the number of wards or closing down altogether.—Mr ELLIOT replied: I recognise the financial difficulties confronting certain of the voluntary hospitals. My hon. friend knows that there has recently been consultation, in regard to London, between representatives of the London County Council, the King Edward VII Hospital Fund and the Voluntary Hospitals Committee for London. I am keeping in touch with these discussions and I have the matter under close consideration.

Sir HENRY MORRIS JONES: Is my right hon. friend aware of the very serious anxiety which the governing bodies of many of these hospitals in the big cities, and also the staffs are going through at the present time? They have rendered a magnificent service to the state and will he consider their financial position?—Mr. ELLIOT: Yes, Sir, those are the matters which are being considered.

Evacuation and Epidemics

Mr. STOKES asked the Minister of Health whether he was satisfied that the epidemiological aspects of the evacuation of children under the air-raid precautions scheme had been given the consideration which their serious nature demanded.—Mr. ELLIOT replied: The attention of local authorities has been directed in paragraph 54 of the Ministry of Health's Memorandum Ev.4, supplemented by paragraphs 13 and 14 of the Board of Education's circular 1469, to the importance of preventive measures against the risk of the epidemic spread of infectious diseases. Arrangements have also been made to supplement the existing public-health laboratory services by the establishment of additional laboratories in localities where it is thought that they will be most needed.

FRIDAY, MAY 26

Panel Doctors' Surgeries

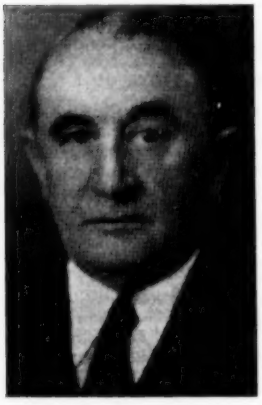
Dr. HADEN GUEST asked the Minister of Health whether he had any statement to make regarding the investigation now being made into the complaints of the conditions of panel doctors' surgeries.—Mr. BERNAYS, parliamentary secretary to the Ministry of Health, replied: No complaints of the conditions of panel doctors' surgeries are at present before my right hon. friend. No investigation, therefore, of the nature indicated is being made by him nor is he aware of any need for such an investigation.

OBITUARY

CHARLES H. MAYO

M.D., D.SC., M.CH., LL.D., F.A.C.S., F.R.C.S., D.P.H.

THE Mayo Clinic is the most characteristic expression of American medicine. Beginning as a small hospital in an insignificant country town it has developed into an immense institution for diagnosis, treatment, and research, established firmly on the principle that every patient shall have the full benefit of modern knowledge. To this end has been directed the same rational planning and the same collective effort that build efficient factories and machines. But though the clinic is thus a product of its age it is also a work of genius. Of its two creators, the younger brother, Charles Horace Mayo, died in Chicago on May 26 at the age of 73.



Their father, William Worrell Mayo, came from Eccles in Lancashire and learnt chemistry at Owens College. After an adventurous career he finally settled at Rochester, Minnesota, in 1863. Two years previously he had married a woman of Scottish parentage, Louise Wright, of New York state, who had soon afterwards displayed great courage in the Sioux rising and massacre of 1862. Of their five children the two boys, William and Charles, very early assisted their father in his practice; and afterwards they would often recount how Charles had to stand on an upturned biscuit box in order to help at operations. When in 1885 his time came for a more formal education he entered Chicago Medical College, returning to his father's surgery in the vacations, and in 1888 he graduated at the Northwestern University.

It was in the following year that the father, then 70, and the two sons opened their new hospital, St. Mary's, with thirteen patients and five nurses from the Roman Catholic sisterhood of St. Francis. Neither William nor Charles had worked as hospital interns; but that, they said, made them more careful. Despite opposition in the town they won increasing success, and soon St. Mary's was able to offer much better surgical facilities than was usual in western towns. At first all three Mayos still worked as general practitioners, but the two sons early showed a surgical bent. They were ready to tackle all sorts of surgery, and as early as 1895 Charles was doing most of the operations on the eye, ear, nose, throat, bones and joints. When the time came to find associates who could take over part of the work they followed at once the policy of training their own associates—a policy which, it has been said, "has resulted in a surgical corps with a perhaps unparalleled unity of ideals and standards, but in which personal initiative has been fostered to a remarkable degree."

Prof. Grey Turner recalls that at the time of his first visit, now 33 years ago, Charlie and Will, as they were always affectionately called, with E. Starr Judd as assistant, did almost all the operative work. "But then the place was little more than a big village, and on arrival at the station the cabmen called out 'Clinic, Hospital, or Cooks Hotel?' as representing the sum of the activities of the place. Now it is a hospital city and the largest single medical centre in the world. In all this remarkable development Charles Mayo played a notable part. He was four years younger than William, but throughout life they worked together as one, and there was singular devotion between them. Throughout all their great successes, as I have often heard them declare, they 'always shared the same pocket-book' (i.e., note-case)."

The history of the Mayo Clinic and Hospital has been written elsewhere and will be written again. From a small local and private venture it has become a national and almost public institution; for in 1919 its properties, already of enormous value, were made over to an appropriate association, while two years previously the University of Minnesota had benefited by the establishment of the Mayo Foundation fund for medical education and research. From their father's day the brothers had accepted patients regardless of their ability to pay; in 1926 about 30 per cent. were paying nothing to the clinic, and 25 per cent. paid only enough to cover the cost of examination. But large sums were nevertheless earned and after salaries had been paid to the staff, including the two chiefs, and provision for upkeep and expansion had been made, the rest went to endowment of research, education, and welfare. The Mayos held, as they said, that the success of the clinic, past, present and future, "must be measured largely by its contributions to the general good of humanity." The extent of these contributions cannot yet be judged, but the existence of the clinic and the fame of its methods have had a profound effect on American medicine, and thus on medicine throughout the world.

The influence has not come so much through outstanding surgical or medical discoveries. It has flowed directly from the conception of William and Charles Mayo that modern medicine demands, not an alteration in the individualistic approach of the patient to the doctor, or the doctor to the patient, but an organisation of medical men that brings to the service of the patient all known facilities for efficient diagnosis and treatment. In the Mayo Clinic the doctor still consults with his patient within the quiet walls of his examining-room, just as every doctor does the world over; but he does so with all the diagnostic aid of the clinic within his easy grasp. Immediate answers to doubtful points are available. He can utilise the experience of hundreds of specialists in a moment. He lives in a medical world where every human fallible factor has been as far as possible eliminated. The system is as fool-proof as human ingenuity can make it. Nevertheless, it is claimed, the essential patient-doctor relationship remains undisturbed; there still must exist confidence, trust and faith between them. There are few hospitals today in any civilised country which have not been in some way influenced by the experiences of this great institution.

It would be easy for a machine of this type to become sterile and lifeless. The Mayo Clinic was never that. Charles Mayo was its soul. He was the humanising element in the organisation. More than anyone he was responsible for the fact that 500 members of the most highly individualistic profession

could be induced to live and work together in a small town on the edge of nowhere—and like it! He it was who established that tradition which enables so many men distinguished in their own particular fields to work in peace and harmony for common ideals. Moreover, this same integrative quality found expression in an even wider sphere. He had a flair for the interpretation of medical knowledge to the lay public. Though he was perfectly at home with the great he never lost that common touch which enabled him to talk to the most humble in terms which could be understood and appreciated. As a result he had a deep interest in public health and in the welfare of the community. He battled fiercely for anything which made his country a better place to live in. In this usually dangerous field for medical men, in which the press must play a part, he was equally successful. His "news value" was enormous but he never offended his colleagues nor antagonised the press. He was honoured by countless universities and scientific bodies but these distinctions he accepted merely in so far as they honoured his colleagues and the clinic as a whole. He regarded himself simply as another member of the institution which by accident bore his name. This was typical of his unselfish life.

As a surgeon he had remarkable versatility and was responsible for innovations over a wide field. "It is characteristic," writes Prof. J. R. Learmonth, "that his first six contributions to medical journals dealt with such varied subjects as glandular tuberculosis, cerebral surgery, nasal sinusitis, injuries of nerves, skin-grafting, and obstruction of the common bile-duct. In all he wrote or shared in 413 papers of professional interest; although in his later life he narrowed the field of his technical interest, he maintained the same broad outlook on surgery in general, and his contributions were always characterised by clarity and proper perspective. The amount of successful surgical work which he accomplished could have been overtaken only by one gifted with great intellectual and physical powers, as well as single-minded devotion to his craft; in addition he had an uncanny knack of inventing procedures which were simple yet entirely efficacious, perhaps the most valuable of which was his brilliant work on transplantation of the ureters to the colon. That he was intrigued by this aspect of surgery is clear from his paper, published six years ago, on 'wrinkles and recipes in intestinal surgery.' As a clinician he had a unique position. At once at ease with any patient, he had the faculty of getting immediately to the root of the matter, and of enlisting his patient's absolute confidence by his ability to put the problem clearly in lay language, and by his transparent sincerity. His patients became and remained his friends. . . . Few men of his position can have commanded the same mixture of deep respect and genuine affection."

Another former assistant, Mr. A. H. McIndoe, to whom we are indebted for many of the more intimate details of this notice, speaks of him as the perfect surgical chief. "Few there were who after five minutes' conversation did not fall beneath the spell of those twinkling eyes set in a half-serious, half-humorous face, of the quiet voice with its characteristic dry twang and the head cocked a little on one side. His method of expression was unforgettable. He presented facts and figures in forthright manner with apt allusions and illustrations drawn from natural history and comparative anatomy, sometimes germane to the point under discussion, sometimes not. He illuminated his picture with flashes of dry humour which kept his audience in a bubble of anticipation. During the morning's work of anything from ten to fifteen major cases he might discuss the number of nails and match-heads, the weight of charcoal and gunpowder which could be made from the constituents of the human body; he might philosophise about the gall-bladder of the pocket gopher, the pineal eye of the tuatara lizard, the galls on his oak trees, the tuberculous lesions of turkeys' livers or a hundred other odd subjects, and between these divagations introduce sound clinical teaching drawn from the accumulated wisdom of his vast experience. Those who listened year by year fascinated by his extraordinary discourse never knew what new and curious information his wide reading and shrewd observation would bring to light.

"As an operator he was rapid, dexterous and direct, bold when necessary, conservative when possible, always gentle. He was difficult to assist, for, contrary to the usual practice of the clinic, he did not try to standardise his technique. He was forever trying new methods, unexpected approaches to difficult problems, variations in routine which were not easy to anticipate. Dr. Will thought that Dr. Charlie would have made a brilliant plastic surgeon, and indeed he loved anything of a constructive nature. He never ragged his assistants and was as unfailingly kind to them at the operating-table as he was outside the theatre. I can vividly remember my first nervous clumsiness as his assistant when he suddenly interrupted the curious mixture of half-scientific jargon and half-popular medical lore with which he delighted his crowded theatre to whisper in my ear—'You're doing fine; so long as you don't drop the bits on the floor I don't mind.' Equally well can I remember the last sad day in 1929 on which he operated—a gastric resection interrupted by his having a retinal hæmorrhage. The day had a particular significance, for in the adjoining theatre the next operation was to witness his own son's initiation as assistant to his famous father. This was a ceremony to be watched with interest and appreciation by the whole clinic and keenly anticipated by father and son. It never took place. How well the son is following in the father's footsteps is evident to anyone who visits the clinic today."

Charles Mayo was a great traveller and was personally known to very many of the surgeons of Europe. In Great Britain he received honorary fellowships from the surgical colleges of England and Ireland and from the Association of Surgeons. In his own country he held the presidency of the American College of Surgeons, the American Medical Association, the American Surgical Association, and innumerable other bodies. During the late war, alternating with his brother, he was chief consultant for all surgical services of the United States army. From 1912 onwards he was medical officer of health for Rochester, Minnesota, where his life was spent.

CHARLES RALPH COOKE-TAYLOR

O.B.E., B.A. OXFD, M.R.C.S., D.P.M.

Dr. Cooke-Taylor, who has died in London at the age of 55, did not qualify in medicine until 1927 when he was already 43. He came of a family of social reformers and after a brilliant career at Oxford University, where he took his degree in 1906 with honours in jurisprudence, he was called to the bar in 1910, and in the same year stood for Parliament in the Holborn division. After that he contested Dulwich unsuccessfully on eight occasions, the last at the general election of 1935; at this time he was president of the Monmouth Liberal Federation and

hon. treasurer of the University of London Liberal Association. His interest in medicine began when during the late war he joined a medical unit for service in Serbia and after capture by the Bulgars he began to work for refugees and obtained an insight into shell-shock. Soon after qualifying in medicine he took a psychological diploma and became visiting physician to the British Hospital for Nervous and Mental Disorders and psychologist to the Ex-Service Welfare Society. His name appeared in the Coronation honours list. He was unmarried.

DONALD ROSE PATERSON

M.D. EDIN., F.R.C.P.

Dr. D. R. Paterson, who died at his home in Cardiff on May 23, had been a general physician before he specialised in diseases of the ear, nose and throat. After qualifying with honours in Edinburgh in 1883 he was house-surgeon at the Northern Infirmary, Inverness, and then at the Cardiff Infirmary with which he remained associated for the rest of his life. In those early days he was lecturer on materia medica at the South Wales University College, pathologist to the Glamorgan and Monmouthshire Infirmary and hon. secretary to the Cardiff Medical Society. A number of short papers which he then wrote covered a wide range of clinical subjects. Having become assistant physician to the infirmary he resigned this appointment to take charge of the ear, nose and throat department, with the teaching of laryngology in the Welsh National School. On one of his many visits to continental clinics he met Killian and became interested in the direct examination of the œsophagus and upper air-passages, being one of the first to use the bronchoscope in this country. He became a corresponding member of several foreign laryngological societies and was elected F.R.C.P. in 1926. An old friend and confrère writes: "Paterson had qualities which placed him among the most trusted and respected figures in his professional circle, whether as a physician or as a specialist. Apart from professional excellence his richly endowed and highly cultured intellect made him a choice companion. It was a stimulating experience to be in his company. He was a fine companion, an earnest worker and a cultured gentleman." In later years Dr. Paterson found time to develop his taste for archæology and became hon. curator of the Cardiff municipal museum, being later elected a member of the council of the National Museum of Wales. In 1897 he married Constance Mary, elder daughter of Richard Baker-Gabb of Abergavenny. They had a daughter and three sons, of whom the eldest was killed in 1917 while on active service in Belgium.

Dr. JOSEPH THOMPSON, who died in Nottingham on May 22, was the son of a local practitioner and was born there in 1844. He was educated at University College, London, and qualified in 1865, going at once into partnership with his father. He was appointed surgeon to the Nottingham General Hospital and the Nottingham Hospital for Women and was an active member of the staff of both until his retirement in 1910. He was a prominent freemason. The eldest of Dr. Thompson's family of five—four sons and one daughter—is Dr. J. B. Thompson, who is in practice in Nottingham. His wife died two years ago.

MEDICAL NEWS

University of Oxford

Dr. Freda Pratt has been appointed first assistant in the Nuffield department of anæsthetics in the university.

University of Cambridge

On May 27 the degrees of M.B., B.Chir. were conferred by proxy on R. D. S. Jack.

University of London

Dr. G. W. Pickering has been appointed to the university chair of medicine at St. Mary's Hospital medical school.

Dr. Pickering, who is 34 years of age, was educated at the Royal Grammar School, Newcastle-on-Tyne, at Dulwich College, and at Pembroke College, Cambridge, where he was a scholar. He obtained a first-class in both parts of the natural sciences tripos and in 1926 went to St. Thomas's Hospital. While working as a student he taught biology at Westminster school. In 1928 he qualified, and in the following year he was awarded the Mead medal and Wainwright prize for medicine at the hospital. He was resident anæsthetist and house-physician, and in 1930 graduated M.B. Camb. and became M.R.C.P. From St. Thomas's he went to University College Hospital as assistant in the department of clinical research under Sir Thomas Lewis, F.R.S. In 1931 he was appointed to the permanent scientific staff of the Medical Research Council and in 1932 he presented, with W. Hess, a preliminary account of his work on the experimental production of headache. This has been followed by many other reports, especially on experimental hypertension and allied problems, and since 1936 he has been lecturer in cardiovascular pathology. Last year he was appointed Herzstein lecturer to the University of California and Stanford University, San Francisco, and spent two months visiting these and other schools in the United States. He was elected F.R.C.P. in 1938.

University of Leeds

The university court decided on May 24 to confer the hon. degree of D.Sc. on Dr. L. A. Rowden, hon. director of the electrotherapy and X-ray departments of Leeds General Infirmary.

Harveian Society of London

On Thursday, June 8, at 7.30 P.M., the annual Buckston Browne banquet of this society will be held at the Connaught Rooms, Great Queen Street, W.C.2.

Society of Apothecaries of London

At recent examinations the following candidates were successful:—

Surgery.—R. M. Coplans, S. K. Krishnan, J. Lieber, and S. A. Schuyler.
Medicine.—S. K. Das, W. D. Jenkins, E. L. Moll, J. R. Rose, E. Smith, and W. E. Swanston.
Forensic Medicine.—S. K. Das, W. D. Jenkins, E. L. Moll, J. R. Rose, E. Smith, and W. E. Swanston.
Midwifery.—E. F. Gleadow, A. N. Kalra, and E. C. G. Miller.

The following candidates, having completed the final examination, are granted the diploma of the society entitling them to practise medicine, surgery and midwifery:

S. K. Das, Bengal and St. George's; E. L. Moll, Guy's; J. R. Rose, Charing Cross; and W. E. Swanston, St. George's.

Royal College of Surgeons of England

On June 2 Miss Dorothy Collier will deliver a Hunterian lecture on facial paralysis and its operative treatment. Other Hunterian lectures will be given on June 12, when Dr. D. W. Gordon Murray will speak on heparin in thrombosis, and on June 14, when Mr. George Armitage will describe gastroscopic observations on the healing of chronic gastric ulcer. On June 5, 7, and 9 Mr. John Beattie will deliver three Arris and Gale lectures on experimental surgery. His subjects will be hyperthermia, arterial hypertension, and blood conservation methods. All these lectures will be held at the college, Lincoln's Inn Fields, London, W.C.2, at 5 P.M.

Medicine Stamp Act

The Socialist Medical Association circulate a statement objecting to the proposed repeal of the Medicine Stamp Act which is, they consider, a retrograde step because (*a*) every committee which has discussed this subject has reported in favour of publishing formulæ on every drug package; (*b*) it will remove even the present semblance of control over these preparations; (*c*) it must lead to more extensive self-medication; and (*d*) it is unlikely to mean any saving to the consumer, but rather increased profits for the manufacturers.

King's College Hospital

Mr. V. E. Negus, F.R.C.S., has been elected president of the Listerian Society for next session. L. D. de Launay and A. B. Kinnier Wilson are the secretaries.

London Hospital

Mr. Hugh Lett, P.R.C.S., consulting surgeon to the hospital, will present the prizes to the students on Thursday, June 29.

Faculty of Radiologists

The first annual meeting of the faculty, which was recently formed by the amalgamation of the British Association of Radiologists and the Society of Radiotherapists, will be held in Liverpool on June 9 and 10, under the presidency of Dr. R. E. Roberts. Further particulars will be found in our Medical Diary.

Indian Medical Service

The annual dinner will be held at the Trocadero Restaurant, London, W.1, on Wednesday, June 14, at 7.15 P.M., when Major-General C. W. F. Melville will preside. Tickets may be had from Major Sir Thomas Carey Evans, the hon. secretary, Hammersmith Hospital, Ducane Road, W.12.

Science and Society

On May 25 at the first public meeting of the new division for the social and international relations of science established last year, its chairman, Sir Richard Gregory, F.R.S., said it represented a deliberate step by the British Association towards the recognition of the obligations of progressive scientific knowledge to the needs of a changing society. Scientific workers could no longer remain indifferent to the social consequences of their discoveries. Prof. Ernest Barker, Litt.D., speaking on the impacts of science on society said that the student of physical science must serve one mistress only—her name was the discovery of truth—regardless of consequences and regardless of social impacts. But when impact happened and consequences declared themselves he should bring his scientific training and technique to help in correcting and easing the consequences where necessary. He concluded by quoting Plato's phrase "The responsibility rests with the chooser: science itself stands free."

Association of Industrial Medical Officers

At the invitation of Messrs. Rowntree and Co. the annual provincial meeting of the association was held on May 19 and 20 at the Cocoa Works, York, where the medical department consists of two whole-time medical officers, a nursing staff of four, the dental department, and the optician. Mr. A. C. Bloomer, who has been full-time dental surgeon for over 20 years, explained that since 1904 a dental service had been available to employees of all grades, without age restriction, and in the case of factory workers a wage payment at minimum day rates is made for the time spent at the department. Dental examination of juvenile entrants is made a routine, parental permission for any extractions required being obtained in 95 per cent. of cases. No charge is made for fillings. For dentures the scale of fees is based on the ruling of insurance societies. Local anæsthetics are given at the minimum charge of 1*s.*; gas-and-oxygen anæsthesia is largely used. Experience has shown the benefit to employee and to employer of dental treatment during working hours in the avoidance of minor illnesses. Miss E. P. Stevenson, M.A., gave an account of the work done by the psychological department. All prospective employees are examined, by means of performance or written tests, to determine their suitability for jobs. The performance tests measure such abilities as hand and eye coördination, muscle control and coördination, speed and accuracy of perception, and finger dexterity. The written tests measure, among other things, the candidate's powers of comprehension, reasoning, and deduction. For apprenticeship to trades certain assembly tests are given in addition. The department takes an active part in the selection and training of teachers and other supervisory staff, advising the management on problems concerned with labour, and undertaking research work on the various questions arising therefrom—e.g., accident proneness.

National Baby Week

National Baby week will be held from July 1 to 7. In its propaganda this year the council is laying stress on fathercraft in the child-welfare movement. Further particulars may be had from the secretary of the National Baby Week Council, 117, Piccadilly, London, W.1.

Service Appointment

Surgeon Rear-Admiral B. Pickering Pick has been appointed to be house governor and medical superintendent of King Edward VII Convalescent Home for Officers at Osborne, in succession to Major-General J. W. West, who retires in October.

British Red Cross Society

At a meeting of the council of this society held on May 18 it was announced that in order to effect the fullest coöperation with the Government's national defence schemes the county branches of the society had been grouped in conformity with the civil defence regions, and a regional subcommittee would be set up to act as a link between headquarters and the branches. The conditions of service and allowances for the society's personnel have not been fully determined, but it is hoped that the Government's proposals will be announced shortly.

During the last year the society has manned over 890 first-aid stations at camps and territorial hospitals and treated over 20,000 casualties. The ambulance service has carried 23,000 patients, while the blood-transfusion service has answered over 6600 calls. Medical supplies and foodstuffs were also dispatched to the sick and wounded in China and Spain. Since last November 55 men's and 431 women's new detachments have been raised with a trained personnel of 1271 men and 9599 women.

Streptococcal Sore-throat in New York State

A statement issued by Dr. Edward S. Godfrey, jun., state commissioner of health for New York, describes an outbreak of septic sore-throat in 502 persons, of whom 178 were children under fifteen. The first 15 cases were discovered among school-children in Malden on May 5; next day it was determined that the outbreak was due to the use of raw milk distributed by one dealer, and all products from the suspected dairy were required to be pasteurised. An infected cow was found on the same day (May 6) and the outbreak thereafter declined rapidly. While the last reports showed a total of 502 cases, it was estimated that there would be a maximum of 600 cases; there have been 3 deaths, all in people of advanced years. The disease was notified as streptococcal pharyngitis, and investigation disclosed that at least 455 patients consumed milk secured from the one dealer, this representing 91 per cent. of all of the septic sore-throat cases investigated. "As nearly as can be determined," says Dr. Godfrey, "the cases are attributable only to the use of raw milk."

Spanish Emigrants

The Mexican government has declared its willingness to absorb many of the refugees now in France who have fled from Spain, provided they are Spanish-born and Spanish-speaking. The National Joint Committee for Spanish Relief is working with the newly formed British Committee for Refugees from Spain to arrange the transport of these emigrants. Once they arrive the Mexican government will be responsible for them and will find them work. Families are being reunited to begin a new life together, and one ship with 1800 refugees aboard has already sailed. About £15 provides a passage and equipment for one adult, and donations for the "refugee ship campaign" may be sent to the committee at 4, Great Smith Street, London, S.W.1.

Almost all the emigrants after the hardships they have endured are in need of some medical care, and the Spanish Medical Aid Committee has undertaken to find the necessary medical stores and to supply the Spanish doctors and international doctors who are accompanying them with instruments and equipment for the voyage and for their new life. The committee has also undertaken to arrange for the medical examination and possible inoculation of the refugees before embarkation. Work among those who still remain in the refugee camps in France must also be continued and they ask that gifts should be sent to them at their new address, 69, Great Russell Street, W.C.1.

Appointments

BATESON, W. G., M.B. Belf., assistant medical officer at the Royal Eastern Counties Institution, Colchester.
BORG, CHARLES, M.D. Malta, assistant medical officer of health for Richmond.
CROSS, A. G., M.B. Camb., F.R.C.S., hon. assistant surgeon to the ophthalmic department of the Princess Beatrice Hospital, London.
KENYON, A. L., M.B. Manc., F.R.C.S., assistant surgeon to the Royal Manchester Children's Hospital.
KNIGHT, G. C., M.B. Lond., F.R.C.S., hon. neurological surgeon to the Princess Elizabeth of York Hospital for Children, London.
LAYCOCK, H. T., M.B. Camb., F.R.C.S., resident surgical officer at Addenbrooke's Hospital, Cambridge.
LISTER, ARTHUR, M.B. Camb., F.R.C.S., assistant surgeon to the Royal London Ophthalmic Hospital.
MACKEITH, S. A., M.R.C.S., D.P.M., deputy medical superintendent at Graylingwell Hospital, Chichester.
MURRAY, L. H., M.D., B.Hy. Durh., D.P.H., medical superintendent of Infectious Diseases Hospitals for the Lanchester Joint Hospital Board.
*NORWICH, ISADORE, M.B. Witwatersrand, F.R.C.S.E., resident surgical officer at Booth Hall Hospital, Manchester.
OAKLEY, W. G., M.D. Camb., M.R.C.P., assistant physician to the diabetic department, King's College Hospital, London.
PAUL, F. A., L.R.C.P.E., senior assistant medical officer at the District Asylum, Inverness.
*PEACH, EMILY M., M.D. Manc., D.P.H., consultant dermatologist at the Booth Hall Hospital, Manchester.
RYAN, J. J., M.B. N.U.I., D.P.M., senior medical officer at Menston Mental Hospital, Leeds.
SMALL, H. A. D., M.B. N.Z., F.R.C.S., surgical registrar at the Royal Cancer Hospital (Free), London.
SNAITH, L. M., M.S. Durh., F.R.C.S., M.R.C.O.G., maternity officer for Newcastle-on-Tyne.
*SOMERFORD, A. R., M.D. Manc., consultant dermatologist at the Crumpsall Hospital, Manchester.
WARD, ERIC, M.R.C.S., D.P.H., assistant county medical officer of health and district medical officer of health for the borough of Arundel and Chichester rural district.

Vacancies

For further information refer to the advertisement columns

Arlesey, Beds, Three Counties Mental Hosp.—Sen. asst. M.O., £650.
Aylesbury, Royal Buckinghamshire Hosp.—Second res. M.O., at rate of £150.
Bangor, Carnarvonshire and Anglesey Infirmary.—Sen. and jun. H.S.'s, £170 and £120 respectively.
Barnstaple, North Devon Infirmary.—Sole res. M.O., at rate of £150.
Belfast, Queen's University.—Jun. lectureship, £300.
Belgrave Hosp. for Children, 1, Clapham Road, S.W.9.—Out-patient M.O., at rate of £150.
Berkshire County Council.—Asst. M.O., £500.
Berkshire Education Committee.—Asst. school M.O., £500.
Birmingham City.—Temporary asst. M.O.H., at rate of £600.
Blackburn, Royal Infirmary.—Res. H.S., £175.
Bognor Regis War Memorial Hosp.—Hon. consultant ophthalmic surgeon.
Bolingbroke Hosp., Wandsworth Common, S.W.11.—H.S. and cas. O., each at rate of £120.
Bristol University.—Lectureship in pathology, £400 to £500.
British Hosp. for Functional Mental and Nervous Disorders, 72, Camden Road, N.W.1.—Hon. physician.
Cambridge, Addenbrooke's Hosp.—H.P., at rate of £130.
Canterbury, Kent County Mental Hosp., Chartham.—Jun. asst. M.O., £350.
Canterbury City and County.—M.O.H. and school M.O., £800.
Central London Throat, Nose and Ear Hosp., Gray's Inn Road, W.C.1.—Hon. assts. in outpatient dept.
Cheltenham General and Eye Hosps.—H.P., £150.
Chester City Hosp.—Jun. res. M.O., at rate of £150.
Chester Royal Infirmary.—H.S. to orthopædic dept., £150.
Connaught Hosp., Walthamstow, E.17.—H.P., H.S., and cas. O., each at rate of £110.
Cornwall County Council.—Deputy county M.O., £720.
Croydon, Mayday Hosp.—Two jun. res. asst. M.O.'s, each £300.
Derbyshire County Council.—Temporary M.O., at rate of £600.
Doncaster Royal Infirmary.—H.S. to ear, nose and throat and ophth. depts. and res. anæsthetist, at rate of £150.
Dover Borough.—M.O.H. and port M.O., £900.
Dreadnought Hosp., Greenwich, S.E.10.—Receiving-room officer, at rate of £150.
Ecclina Hosp. for Sick Children, Southwark, S.E.1.—Radiologist, £120.
Glasgow, Redlands Hosp. for Women.—Jun. asst. in dept. of general surgery.
Glasgow, Western Infirmary.—Asst. radiologist, £400.
Greenwich Metropolitan Borough, S.E.10.—Asst. M.O., £500.
Halifax Royal Infirmary.—Cas. O., at rate of £150.
Hampstead General and North-West London Hosp., Haverstock Hill, N.W.3.—H.S., at rate of £100.
Hastings, Royal East Sussex Hosp.—Jun. H.S., at rate of £150.
Hertfordshire County Council.—Asst. M.O. for maternity and child-welfare work, £500.
Hosp. for Consumption and Diseases of the Chest, Brompton, S.W.3.—Two surg. registrars, each £150.
Hosp. for Women, Soho Square, W.1.—Hon. clin. assts.
Huddersfield Royal Infirmary.—H.S. to abnormal maternity dept., and two H.S.'s, each at rate of £150.
India, Assam Medical Research Society, Shillong.—Research officer, Rs. 1000/- per mensem.
Kidderminster and District General Hosp.—Sen. and jun. H.S.'s, at rate of £150 and £100 respectively.
King's College Hosp., Denmark Hill, S.E.5.—Asst. physician to children's dept.
Kingston County Hosp.—Res. asst. obstetrician, and res. asst. physician, each £350.
Larbert, Stirling District Mental Hosp.—Asst. M.O., £250.
Leeds, Meanwood Park Colony.—Med. supt., £800.
London County Council.—Res. med. supt. for St. James' Hosp., Balham, £1300. Also asst. M.O., £600.
London Hosp., E.1.—Medical first asst. and registrar, £300. Medical outpatient first asst., £150. Also clin. asst. in X-ray dept., £100.
London University.—Chair of pathology at St. Thomas's Hosp. medical school, £1200. Also external examinerships.
Maida Vale Hosp. for Nervous Diseases, W.9.—Hon. asst. physician.
Manchester, Christie Hosp. and Holt Radium Institute.—Two clin. assistantships.
Manchester, Crumpsall Hosp.—Res. asst. M.O., at rate of £200.
Manchester, Duchess of York Hosp. for Babies.—Sen. res. M.O., at rate of £125.
Manchester City Education Committee.—School M.O., £1000.
Manchester Royal Infirmary.—Chief asst. to surgical unit, £250.
Manchester University.—Asst. director in dept. of clinical investigations and research at Manchester Royal Infirmary, £400.
Middlesex Hosp. and Medical School, W.1.—Surg. reg., £300.
National Temperance Hosp., N.W.1.—Hon. physicist.
Nottingham General Hosp.—Res. anæsthetist, at rate of £150.
Oldham County Borough.—Deputy M.O.H. and asst. tuber. officer, £750.
Oswestry, Robert Jones and Agnes Hunt Orthopædic Hosp.—H.S., at rate of £200.
Oxford, Radcliffe Infirmary.—Surg. reg., £400.
Plymouth City General Hosp.—Jun. asst. M.O., at rate of £250.
Plymouth Royal Eye Infirmary.—Hon. surgeon.
Portsmouth Royal Hosp.—H.P., at rate of £130.
Queen Mary's Hosp. for the East End, Stratford, E.15.—Radiologist, £350. Also registrar to ear, nose and throat dept., 50 guineas.
Queen's Hosp. for Children, Hackney Road, E.2.—H.P. and cas. O., each at rate of £100. Also asst. surgeon.
Reading, Royal Berkshire Hosp.—Res. H.S., res. H.S. to special depts., and res. cas. O., each at rate of £150.
Rochdale Infirmary and Dispensary.—Sen. H.S., £200.
Rotherham Hosp.—Cas. H.S., £150.
Royal London Ophthalmic Hosp., City Road, E.C.1.—Pathologist and curator, £650.
Royal Masonic Hosp., Ravenscourt Park, W.6.—Res. surg. O., at rate of £250.
Royal Northern Hosp., Holloway, N.7.—Res. M.O., £370. H.S. at rate of £70. Also second physician for diseases of the skin
St. Albans, Hill End Hosp. and Clinic, &c.—Two H.P.'s, each at rate of £165.
St. John Clinic and Institute of Physical Medicine, Ranelagh Road, S.W.1.—Asst. surgeon to orthopædic dept. Also clin. asst. to light dept.
St. Mark's Hosp. for Cancer, Fistula, &c., City Road, E.C.1.—H.S., at rate of £120.
St. Mary's Hosp., W.2.—Hon. physician in charge of dept. for diseases of children.
St. Peter's Hosp. for Stone, &c., Henrietta Street, W.C.2.—Clin. assts. to hon. staff.
Sheffield, Jessop Hosp. for Women.—Registrar, £250. Sen. res. O. and res. M.O., each at rate of £150. Also H.S.'s, each at rate of £100.
Sheffield Children's Hosp.—H.P., £100.
Shrewsbury Royal Salop Infirmary.—Res. surg. O., £250.
Sittingbourne and Milton Urban District.—M.O.H. and asst. county M.O., £800.
South London Hosp. for Women and Children, South Side, Clapham Common, S.W.4.—Radiologist.
Southampton, Royal South Hants and Southampton Hosp.—Asst. radiotherapist in new radium and deep X-ray block, £475.
Southampton Free Eye Hosp.—H.S., at rate of £150.
Stockport County Borough Education Committee.—Sen. asst. school M.O., £700.
Stoke-on-Trent, North Staffordshire Royal Infirmary.—H.S. to aural and ophth. depts., at rate of £150.
Stourbridge Borough.—M.O.H. and M.O. to North Worcestershire Joint Isolation Hosp. Board, £800.
Swansea County Borough.—Asst. M.O., £500.
Sydney University.—University postgraduate lectureship in pathology and directorship of pathological unit at Prince Henry Hosp., £1500 (Australian currency).
Taunton, Taunton and Somerset Hosp.—H.P., at rate of £125.
Tilbury Hosp.—H.S., at rate of £140.
Tunbridge Wells, Kent and Sussex Hosp.—Res. surg. O., £250.
Wakefield, Scalebor Park Mental Hosp.—Asst. M.O., £400.
Warwickshire Voluntary Hospitals Council.—Hon. visiting phys. to Coventry and Warwickshire Hospital.
Warwick, Warwickshire and Coventry Mental Hosp., Hatton.—Deputy med. supt., £650.
West London Hosp., Hammersmith, W.6.—Res. cas. O., at rate of £100.
Westminster Hosp., S.W.1.—Hon. sen. and jun. clin. assts. to dept. of psychological medicine.
Willesden General Hosp., Harlesden Road, N.W.10.—Hon. clin. assts. Also refraction asst., 1 guinea per session.
Worcestershire, King Edward VII Memorial Sanatorium, Knightwick.—Asst. county tuberculosis officer, £450
York County Hosp.—H.S. to eye, ear, nose and throat dept., £150.

* Subject to confirmation.

Medical Diary

June 5 to June 11

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole Street, W.1.

WEDNESDAY.

History of Medicine. 5 P.M., Prof. M. F. Ashley-Montagu (New York): Edward Tyson (1650–1708) Physician, Comparative Anatomist and Anthropologist.

FRIDAY.

Ophthalmology. 4.30 P.M., cases. 5 P.M., annual general meeting. Mr. A. H. Levy and Dr. P. Manson-Bahr: Bilateral Keratitis and Cyclitis due to Filaria (Onchocerca Volvulus) Infection in a European from Kenya.

SATURDAY.

Surgery. 2.15 P.M. (Royal Infirmary, Leicester), cases. Dr. W. D. Jeans: Medical and Surgical Treatment of Goitre. Mr. D. McGavin: Chronic Non-tuberculous Epididymitis. Dr. Joan Walker: Unusual Pathological Specimens.

FACULTY OF RADIOLOGISTS.

FRIDAY.—10 A.M. (Liverpool Medical Institution), Dr. R. E. Roberts: presidential address. 2 P.M., Dr. J. L. A. Grout: Diseases of Bone. 2.40 P.M., Dr. C. G. Teall: A Radiological Study of the Bone Changes in Anæmia and Leukæmia in Children. 3.20 P.M., Dr. A. E. Barclay: Radiological Demonstration of the Adult and Fœtal Circulation.

SATURDAY.—10 A.M., Prof. Henry Cohen, Prof. R. E. Kelly, Prof. W. M. Frazer, Dr. J. Ralston Paterson, Dr. J. F. Brailsford: The Cancer Problem.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

THURSDAY.—8.30 P.M. (Kensington Town Hall, W.8), Prof. J. B. S. Haldane, F.R.S.: Congenital Disease. (Cavendish lecture.)

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY.

THURSDAY.—8.30 P.M. (11, Chandos Street, W.1), Dr. E. B. Strauss: Escape into Normality.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

UNIVERSITY OF EDINBURGH.

TUESDAY.—5 P.M. (University New Buildings), Mr. A. L. Bacharach: Vitamin E.

FRIDAY.—5 P.M., Prof. C. A. Lovatt Evans, F.R.S.: Metabolism of the Heart. (Sharpey Schafer lecture.)

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

THURSDAY and FRIDAY.—5 P.M., Dr. Henry Yellowlees: Problem of Adolescence. (Morison lectures.)

HONYMAN-GILLESPIE LECTURE, EDINBURGH.

THURSDAY.—4.30 P.M. (Royal Infirmary), Miss Gertrude Herzfeld: The Acute Abdomen in Childhood.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART.

THURSDAY.—5 P.M. (1, Wimpole Street, W.1), Prof. W. T. Ritchie: Acute Rheumatic Carditis. (St. Cyres lecture.)

ST. MARY'S HOSPITAL, W.2.

TUESDAY.—5 P.M. (Institute of pathology and research), Prof. J. R. Marrack: The Chemical Bases of Immunity Reactions.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W.12.

MONDAY.—4.30 P.M., Dr. R. C. Wingfield: Pulmonary Tuberculosis.

WEDNESDAY.—Noon, clinical and pathological conference (medical). 2 P.M., Prof. J. H. Dible: Pathology of the Gastro-intestinal Tract (I). 3 P.M., clinical and pathological conference (surgical). 4.30 P.M., Prof. H. W. C. Vines: Pathology of the Adrenal Glands.

THURSDAY.—2.15 P.M., Dr. Duncan White: radiological demonstration. 3.30 P.M., Colonel L. W. Harrison: Gonorrhœa in Women.

FRIDAY.—2 P.M., clinical and pathological conference (obstetrics and gynæcology). 2.30 P.M., Mr. Charles Donald: Acute Pyogenic Infections.

Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics and operations, obstetrical and gynæcological clinics and operations.

ST. GEORGE'S HOSPITAL, S.W.1.

THURSDAY.— 5 P.M., Dr. Alfred Meyer: psychiatric demonstration.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.1.

THURSDAY.—2 P.M., Dr. Wilfred Pearson: Causes, Symptoms and Treatment of Bronchiectasis. 3 P.M., Dr. W. G. Wyllie: The Recognition and Treatment of Pulmonary Tubercle in Children.

Outpatient clinics daily at 10 A.M. and ward visits at 2 P.M.

TAVISTOCK CLINIC, Malet Place, W.C.1.

MONDAY.—6 P.M., Dr. Emanuel Miller: Type Diagnosis.

WEDNESDAY.—3 P.M., Dr. Cedric Shaw: Sexual Difficulties. 4.30 P.M., Dr. H. Crichton-Miller: Frigidity.

THURSDAY.—6 P.M., Dr. Alice Hutchison: Disorders of Childhood—Hysterical Manifestations, Digestive, Respiratory, and other Disorders.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole Street, W.1.

MONDAY to SUNDAY.—ST. MARY'S HOSPITAL, W.2, Tues. and Thurs, 8 P.M., clinical and pathological M.R.C.P. course.—BROMPTON HOSPITAL, S.W.3, all-day thoracic surgery course. Mons. and Thurs., or Tues. and Fri., 5.15 P.M., M.R.C.P. course in chest diseases.—LONDON CHEST HOSPITAL, Victoria Park, E.2, Wed. and Fri. 6 P.M., M.R.C.P. course in heart and lung diseases.—CITY OF LONDON MATERNITY HOSPITAL, City Road, E.C.1, Sat. and Sun. course in obstetrics.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION.

WEDNESDAY.—4 P.M., Dr. A. E. Tudor Hart: Recent Experiences in the War in Spain.

MANCHESTER ROYAL INFIRMARY.

FRIDAY.—4.15 P.M., Dr. C. S. Don: demonstration of medical cases.

Births, Marriages and Deaths

BIRTHS

CUTHBERT.—On May 27, at Newcastle, the wife of Dr. Martin Cuthbert—a daughter.

DARMADY.—On May 24, at Britford, Salisbury, the wife of Dr. E. M. Darmady—a daughter.

GIBBS.—On May 25, at Cobham, Surrey, the wife of Dr. A. J. Gibbs—a son.

HAMILTON-TURNER.—On May 25, the wife of Dr. Claude Hamilton-Turner, of Cadogan Place, S.W.1—a daughter.

HICKS.—On May 23, at Hove, the wife of Dr. Leighton Hicks—a son.

HUBBARD.—On May 13, at the Government Hospital, Madras, the wife of Captain Philip A. Hubbard, I.M.S.—a son.

LLEWELLYN.—On May 27, at Datchet, the wife of Dr. E. E. Llewellyn, of Virginia Water—a daughter.

TUKE.—On May 26, the wife of Dr. R. G. Tuke, of Bournemouth—a son.

WILDE.—On May 21, in Dublin, the wife of Dr. J. F. Wilde, of Doughty Street, W.C.1—a son.

MARRIAGES

BRAY—DESPREZ.—On May 22, in Paris, John Storey Barwick Bray, M.R.C.S., to Elise Soulbieu Desprez.

FLETCHER SHAW—STEVENSON.—On May 24, at St. Mary Abbots, Kensington, W. Fletcher Shaw, F.R.C.O.G., to Mabel Mary, widow of Archibald Campbell Stevenson, M.B.

FRAZER—DICKINS.—On May 20, at the Church of the Sacred Heart, London, Walter FitzGerald Frazer, M.R.C.S., to Kathleen Miriam Tavener Dickins.

DEATHS

BARROW.—On May 29, Albert Boyce Barrow, M.B. Lond., F.R.C.S., aged 94.

CAIRNEY.—On May 23, at Queen Victoria Hospital, Nice, Maud Christine Cairney, M.B. Glasg., D.P.H., D.T.M. & H.

CLAPPERTON.—On May 27, at Corby, Kettering, Thomas James Milner Clapperton, L.S.A.

COOKE-TAYLOR.—On May 24, at University College Hospital, London, Charles Ralph Cooke-Taylor, O.B.E., M.R.C.S., of Chepstow, Monmouthshire, aged 55.

DAVIES.—On May 30, Frederick Mark Davies, L.R.C.P., of Rodney Court, W.9, aged 74.

ELLIS.—On May 27, Frederick William Ellis, M.D. Aberd., F.R.C.S., of Birmingham.

GILRUTH.—On May 25, at Arbroath, James Davie Gilruth, M.D. Edin., F.R.C.P.E., of Drumkemmo, Carnoustie.

PERDRAU.—On May 29, at Guy's Hospital, Jean René Perdrau, M.B. Lond., M.R.C.S.

SWINFORD EDWARDS.—On May 29, at Grosvenor Street, W.1, Frederick Swinford Edwards, F.R.C.S., aged 86.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

THE LANCET 100 YEARS AGO

June 1, 1839, p. 378.

From a review of "Practical and Surgical Anatomy and Physiology" by W. J. Erasmus Wilson

. . . On our first impressions much depends, and he who commences the study of his anatomy with confused and ill-arranged ideas, let him not suppose that he has merely lost his first season; on the contrary, he will painfully find in the second that Locke somewhat too boldly advanced his doctrine, that the mind was a sheet of white paper, or wax; if it have the one property of readily receiving impressions, it has another additional, and sometimes very inconvenient one, that of retaining more or less clearly imprinted all that has once been traced.

In fact, to obliterate erroneous views, or give clearness to ideas once confused, are perhaps the most difficult tasks we ever have to perform, infinitely more so than to acquire new matter, however abstruse or elaborate.

NOTES, COMMENTS, AND ABSTRACTS

GROWTH OF CHILDREN IN DAY-SCHOOLS

BY JOHN ALLAN

PERIODICALLY those interested in the health and development of children are faced with certain questions which at present cannot be answered satisfactorily. They may be asked: What is the best length of term for children at day-schools or boarding-schools? Is the pressure of school work well adjusted to the needs of the children? Would alterations of routine be likely to modify the frequency or intensity of epidemics? Do the effects of boarding-school routine differ from those of day-school routine?

The present investigation was undertaken in an endeavour to obtain information which would enable definite answers to be given to such questions. Boys attending two large secondary day-schools in the more prosperous suburbs of Leeds were measured at intervals of four weeks throughout the school year 1937–38. Measurements were obtained for 580 boys in one school and 430 boys in the other. As yet only a partial analysis has been made of the material collected, but it is already clear that it will not be possible to give unqualified answers to all the above questions.

METHODS

The boys were measured for height and weight at the beginning of term and at intervals of four weeks thereafter. The measurements were taken by gymnasium classes, at the same time of day on each occasion, and cotton shorts were the only clothing worn. The amounts gained by each boy were expressed as a percentage of his previous measurement and the gains for each month averaged by age-groups. The ages of the boys ranged from 8 to 18 years and at the beginning of the school year the mean age for all boys at the larger school, with which this article is principally concerned, was 13 years 4 months. Unfortunately it was not always possible to measure every boy throughout the year, and there was consequently some fluctuation in the constitution and mean age of the population measured each month. To eliminate the possibility of variations of age-distribution and attendance falsifying the results a separate group of boys, aged 13½ plus or minus 5 months, was examined and the findings for this group were compared with those obtained for the whole population (figs. 1 and 2). The numbers in this special group were 75, 86, and 17 for the autumn, spring, and summer terms respectively, and the composition of the group was constant for the duration of each term. The figures show that the rates of increase in weight (fig. 2) varied in a closely similar manner in both the limited group and in the whole measured population.

RESULTS

The records for both schools were in close agreement throughout the year. The rate of increase in height varied little during term time, only a slight

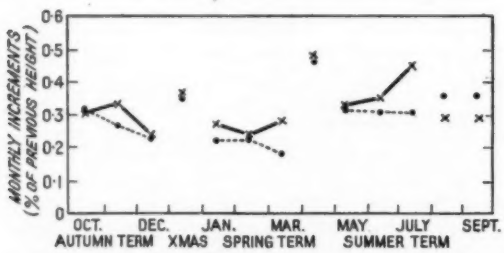


FIG. 1—Average monthly height increments (expressed as percentages of previous height) of day-boys attending Leeds Secondary School 1937–38.
x——x Boys aged 13½ years ±5 months; mean number 64.
•·····• Boys aged 8–18 years; mean age 13 years 9 months; mean number 344.
The points for August and September are half the total increment for the whole holiday period.

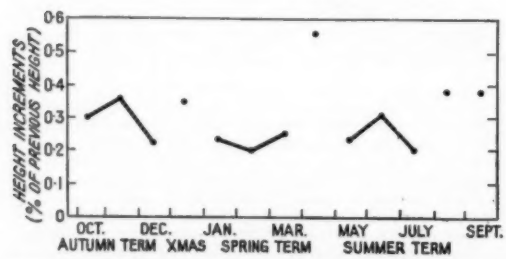


FIG. 3—Average monthly height increments (expressed as percentages of previous height) of boarding-school boys aged 13½ years ±5 months; mean number measured each month 66.

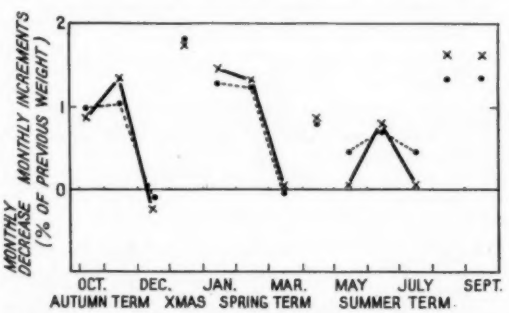

MONTHLY INCREMENTS (% OF PREVIOUS WEIGHT)
MONTHLY DECREASE (% OF PREVIOUS WEIGHT)
2
1
0
OCT. DEC. JAN. MAR. MAY JULY SEPT.
AUTUMN TERM XMAS SPRING TERM SUMMER TERM

FIG. 2—Average monthly weight increments (expressed as percentages of previous weight) of day-boys attending Leeds Secondary School 1937–38.
x——x Boys aged 13½ years ±5 months; mean number 64.
•·····• Boys aged 8–18 years; mean age 13 years 9 months; mean number 344.

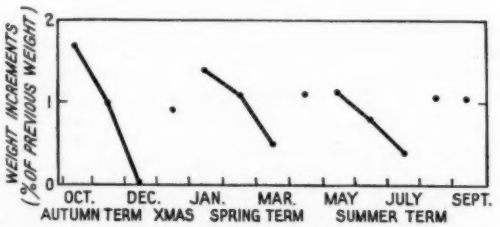


FIG. 4—Average monthly weight increments (expressed as percentages of previous weight) of boarding-school boys aged 13½ years ±5 months; mean number weighed each month 66.

reduction being noticeable towards the end of the two winter terms. In the holidays gains were more rapid, particularly in the spring holidays. Weight increments showed considerable fluctuations, and the reduction in the rate of increase at the end of term was very remarkable. The rates of gain in weight during the Christmas and summer holidays were higher than at any period of the three terms. It should be emphasised that during the two winter terms the changes in the rates of growth are strikingly similar to those found for children in boarding-schools (figs. 3 and 4) and previously described (Allan 1937). A comparison of figs. 1 and 3 shows that the pattern of height increments for the 13½-year-old group is identical in form during the autumn and spring terms, both for day-boys and boarders. The mean weight increments shown in figs. 2 and 4 seem to indicate that the change to boarding-school environment after the holidays acts as a stimulus to weight production. As a result the periods of most rapid gain occur during term time instead of during the holidays, in the case of this boarding-school. The contrast during the Christmas holidays is very obvious, the boys from day-schools gaining at nearly double the rate of those from the boarding-school. This may be caused by reaction after the exceptionally long autumn term to which day-school children are subjected.

ATTENDANCE AND SCHOLARSHIPS

A preliminary analysis of the attendance records shows that in the smaller school, both as regards scholars and others, attendance was much better than in the larger day-school—a result which might have been anticipated from the findings published in a report of the Medical Research Council (1938). In each term there was a tendency for a greater number of absences to be recorded during the last five or six weeks than during the earlier weeks of the term. It was not surprising to find that the proportion of boys with perfect attendance was higher, in every term, among scholarship holders than among the general population of the two schools. At the age of 16½, however, the averages for height and weight for boys holding scholarships were 66·7 in. and 121·2 lb., that is, ¼ in. and 4 lb. below the averages for those without scholarships. Those taking less than twenty minutes for the journey between home and school had better attendance records than those with longer journeys, but the length of the journey had no appreciable effect on the amount grown during a period of six months. On the whole those walking to school from short distances, covered in less than twenty minutes, had better attendances than those who habitually cycled to school, but the difference was not great.

CONCLUSIONS

Both in day-schools and in boarding-schools there is a period at the end of every term when there is a reduction in the number of boys who gain weight and in the amount of weight gained. Even those who gain weight in each month of the term do so more slowly in the final month. It would seem unlikely that this reduction in rate of gain is due to seasonal influences and improbable that seasonal influences should produce such sudden changes in the rate of growth. In this connexion the rates shown in fig. 2 for November and December, February and March, and June and July should be compared.

The rate of increase in height is not materially affected as the term progresses, although some slight reduction at the end is often perceptible. During each holiday period there is an apparent acceleration in the rate of growth in height.

With a relatively high rate of growth, both in height and weight, the Christmas holidays, for day-boys, would seem to be a period of considerable metabolic activity at a time when climatic conditions may be regarded as unfavourable for growth. Whether this physiological activity has any effect on the resistance to disease during the succeeding term, notorious for its epidemics, is unknown. It is possible that a shortening of the autumn term or an increase in the duration of the half-term holiday might enable children to begin the spring term with enhanced powers of resistance.

The sudden decline in increase of weight that takes place during the final month of each term raises the question whether the pressure of school work and play is well adjusted to the needs of the children. If it is conceded that the mental and physical stresses or the length and consequent monotony of the term are not well adjusted to their needs, it is possible that alterations of routine might have beneficial effects on the frequency and severity of epidemics.

This investigation was carried out under the auspices of the department of physiology in the school of medicine at the University of Leeds, and with the coöperation of the Leeds education committee, the chief medical officer for schools, and the physical training staff of the schools concerned. I wish to express my gratitude to all who assisted me in this work either directly or indirectly. In particular my thanks are due to Prof. Albert Hemingway for providing me with the facilities and assistance which made this work possible.

REFERENCES

Allan, J. (1937) *Lancet*, **1**, 674.
Medical Research Council (1938) *Spec. Rep. Ser. med. Res. Coun., Lond.* No. 227.

TIME-BUDGETS

MANY people keep a more or less haphazard diary but the time consumed by each of the occupations recorded remains a matter for speculation. Two American workers have tried to investigate the daily activities of a number of people from the point of view of kind, duration, frequency and motives. To this end they persuaded some hundred persons to keep systematic records of all their activities for a month; the recording had to be done not only on the same day but if possible immediately a given activity was ended. The record was called a time-budget.[1] When all the data were in, the various activities were classified into eight categories: those directly satisfying physiological and economic needs, social, religious, intellectual, artistic activities, love and courtship, and miscellaneous pleasurable activities. Analysis of the records showed that by far the most time was expended on the activities subserving physiological and economic needs: these account for 18 hours out of the 24, in the proportion of 11 to 7. The political, civic and general social activities take up only about 1¼ hours; this prompts the authors to reflections on the apparent indifference to the way in which the keepers of the budgets are governed; may it not favour the emergence of political minorities with dictatorial tendencies? The cultural activities —religious, intellectual and artistic—account for about 2 hours a day, but the details supplied suggest the overwhelming predominance here of wireless and newspaper which some would hardly admit to this category. Amorous and pleasurable activities are said to have occupied 1¾ hours. The fact that smoking is included in the last category casts further

1. Time-Budgets of Human Behaviour. By Pitirim A. Sorokin and Clarence Q. Berger. London: Humphrey Milford, Oxford University Press. 1939. Pp. 204. 10*s.* 6*d.*

doubts on the classification; in heavy smokers it is likely to overlap many other activities.

On the basis of their analysis the authors feel that too much fuss has been made about the amount of leisure time available; to try to fill almost non-existent vacant periods with healthful and commendable activities seems to be a work of supererogation. As might have been expected, the section devoted to motivation is the least convincing. Such a study could only assess expressed motives, and apart from the fact that some motives are unconscious and some subconscious, many people are not sufficiently introspective to analyse their motives further than that they do things either because they want to, or because they must. The subjects of this study did their best and admitted to such motives as personal comfort, filling in time, and so on. Their answers show that even within the limits of this investigation the relationship between activities and motives is very complicated. After the motive of physical and physiological need, the "force of circumstance" is the most important, suggesting to the authors that the problem of freedom has shifted from the political issues prominent in previous centuries (and we might add in some countries today) to economic and other issues connected more vitally with personal liberty and welfare. The subjects were also asked to predict their activities for a specified period which could be checked later by events. It was found that the errors increased with the length of time ahead, the least error being connected with behaviour for the next 24 hours and for "one week from today."

When one thinks of the difficulty of getting reliable data on such relatively objective facts as sickness absence or income in this country, one is amazed not at the number who omitted to fill in these elaborate forms but at the persistence of those who did. No-one imagines that they are an unselected group, but even so their answers suggest that many generalisations made about the way in which people spend their time may be fallacious.

ORAL THERAPY IN DIABETES

A NEW way of treating diabetes is described by L. Manzi who employs a duodenal extract given orally in the form of a tablet (*Rass. Clin. Terap.* March-April, 1939, p. 127). In 1927, he says, Takacs made an extract of duodenal mucosa which not only stimulated the external secretion of the pancreas (secretin) but also stimulated the internal secretion of that organ and thus diminished the blood-sugar ("incretin"). Manzi's preparation, which he calls Duocrina, is stated to contain two hormones, one of which acts rapidly on hyperglycæmia while the other has a more delayed action. Several cases are recorded in which the new product was given simultaneously with insulin; others received duocrina alone. The unit, a tablet, is not defined as to potency.

AN OSTEO-ARTHRITIC TRIAD

IN an address to the Heberden Society on May 16 Dr. Ernest Fletcher concluded, from a study of 103 cases of general osteo-arthritis—of which obesity was present in 49 per cent., high blood-pressure in 43 per cent., and both conditions together in 25 per cent.—that obesity, high blood-pressure, and osteo-arthritis formed a triad which was too common to be a mere coincidence. Consequently some of the symptoms and morbid changes of osteo-arthritis might be elucidated by consideration of obesity and hypertension not only separately but also in combination—e.g., in Zondek's hypertonic obesity, the Stewart-Morel syndrome, and Cushing's syndrome. The age-incidence of osteo-arthritis was not that of old age but rather that of the later periods of adult life, when endocrine disturbances were more likely. Sometimes it was seen in the third decade, and then it was often associated with suddenly acquired obesity.

A general survey of obesity and hypertension suggested that the endocrine system, especially the pituitary, suprarenals, and perhaps the pancreas and thyroid was particularly to be incriminated. Nevertheless osteo-arthritis might be a phenomenon that merely followed obesity and hypertension, and there were cases of osteo-arthritis with normal body-weight and blood-pressure. Even the latter, however, might have an endocrine origin, because many endocrine syndromes were associated with loss of weight and with low blood-pressure. The fact that osteo-arthritis appeared to be a "pattern" reaction was probably the confusing factor, but it seemed likely that an endocrine dyscrasia might be the trigger that produced the pattern.

M.D. LAUSANNE

A LARGE proportion of registered medical practitioners in this country possess the diplomas of the various licensing bodies only, and no university degree in medicine, though to the lay public all medical men are "doctors." This lack of a degree is often a cause of regret in after life, but there must be few who are willing or able to give up some years of their practising life to making it good. The University of Durham, which used to offer its M.D. degree to practitioners who were non-graduates in medicine, by special examination, gave up doing so in 1932. The M.D. Brux. had a similar fate. It has, however, been possible for a long time for a British medical man to take the M.D. degree of one of the Swiss state universities—Bern, Geneva and Lausanne—under reasonable conditions. The University of Lausanne require a candidate who is registered in the United Kingdom to pass a viva voce examination in six subjects of the final medical examination and to present a thesis prepared under the direction of one of the professors of the faculty of medicine. The course can be completed in one academic year. It does not of course entitle its holder to practise medicine in Switzerland. A booklet with full details can be obtained from Dr. C. A. H. Franklyn, hon. secretary of the Lausanne Medical Graduates Association, at the Corner House, Queensway, Lincoln.

WILLIAM TURNED GUGLIELMO

Mr. R. T. Gunther, LL.D., has contributed to *Nature* (April 22, p. 667) "a first sketch for a biography" of an almost forgotten scientific worker; one who attained at an early age distinction in the profession of medicine, and then abandoned it and reappeared a few years later as a leading authority on volcanic minerals and a notable collector. When in 1786 William Thomson at the age of twenty-five was elected F.R.S. and appointed Dr. Lee's lecturer in anatomy, with a post at the Radcliffe Infirmary and a fellowship at Christchurch, he seemed to have embarked upon a settled career. Four years later for some unknown reason he abandoned all his appointments and expatriated himself. He settled in Italy and began the study of minerals. His chemical and scientific training led him to some discoveries in structure, and he was soon attracted to the study especially of the minerals produced by volcanic action. In 1794 he was able to witness the great eruption of Vesuvius and next year, when the lava had sufficiently cooled, to visit the site of the vent and pursue his studies on the alterations of rocks, stones and metals produced by the great heat. His collection of volcanic minerals and rocks was, says Dr. Gunther, well known to the scientific men of the time and was probably "the most scientifically collected series" ever brought together. The mineralogist was known as Guglielmo Thomson, and it was by a fortunate chance that Dr. Gunther has been able to identify him with William Thomson, Dr. Lee's lecturer in anatomy.

AMALGAMATION OF LONDON THROAT HOSPITALS.—At a meeting of the committees of management of the Golden Square Throat, Nose, and Ear Hospital and the Central London Throat, Nose, and Ear Hospital held last week it was unanimously decided to amalgamate the hospitals. A new joint building will, it is understood, be erected in London.